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The resources industry in Western Australia: 2001-02 to 2005-06
The agriculture industry in Western Australia



STATE ACCOUNTS

State final demand in Western Australia rose by 0.9% to \$27,066 million in the December quarter 2006 in trend chain volume terms.



PRICES

Inflation eased in Perth over the last two quarters, with growth in Perth's consumer price index (CPI) falling to 0.4% in the December quarter 2006, down from 1.8% and 1.1% in the two preceding periods respectively. Wages grew by 1.1% in Western Australia in the December quarter 2006, according to the wage price index of total hourly rates of pay excluding bonuses.



CONSUMPTION

Retail turnover in Western Australia rose by 3.1% (\$183 million) in trend terms in the three months to January 2007, compared to the previous three month period. Sales of new motor vehicles have increased in Western Australia over the last thirteen months, from 8,711 vehicles in January 2006 to 10,019 vehicles in February 2007 in trend terms.



INVESTMENT AND FINANCE

After peaking at \$4,423 million in the June quarter 2006, business investment in Western Australia declined for the second successive quarter in December 2006, falling 2.9% or \$128 million in trend chain volume terms. The number of dwellings financed for owner occupation in Western Australia has continued to decline in each of the last eight months, from 9,616 commitments in May 2006 to 8,235 commitments in January 2007 in trend terms.



CONSTRUCTION

The number of house approvals in Western Australia has fallen for eleven consecutive months, from 1,886 in February 2006 to 1,584 in January 2007 in trend terms - down 16.0% or 302 approvals.



TRADE

Western Australia's trade surplus rose by 21.4% (\$1,748 million) to \$9,919 million through the year to December quarter 2006, following a strong rise in the previous period of 35.7% (\$2,613 million) through the year to September quarter 2006.



MINING

Expenditure on mineral exploration in Western Australia rose by 12.2% (\$22 million) to \$200 million in the December quarter 2006 in trend terms.



TOURISM

The number of overseas holidaymakers arriving in Western Australia rose by 7.0% (5,722) in the December quarter 2006 compared to the same period of 2005.



LABOUR MARKET

Full-time employment in Western Australia rose by 0.7% (5,100 persons) to 773,100 persons in the three months to February 2007 in trend terms. The unemployment rate for Western Australia fell from 3.3% in November 2006 to 3.0% in February 2007 in trend terms.



POPULATION

The preliminary estimated resident population for Western Australia was 2,061,477 in the September quarter 2006, an increase of 10,593 persons or 0.52% from the June quarter 2006.



SOCIAL TRENDS - FAMILIES AND HOUSEHOLDS

In 2005, 11,100 marriages were registered in Western Australia, representing an increase of 500 (4.9%) from 2004, and there were 5,300 divorces in the same year. There were 26,300 births registered in Western Australia in 2005, 3.8% higher than in 2004 (25,300 births) and 8.2% higher than in 2003 (24,300 births). In June 2006, 11.6% of children under 15 (47,200) in Western Australia were living in families where no parent was employed, decreasing from 15.7% in June 1996.

List of Historical Feature Articles

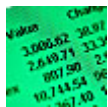


List of Historical Feature Articles

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Mar 2001	<u>Crime and safety in Western Australia</u>
Dec 2000	<u>Small business in Western Australia</u>
Sep 2000	<u>Western Australia's' merchandise trade with the rest of the world</u>

State accounts

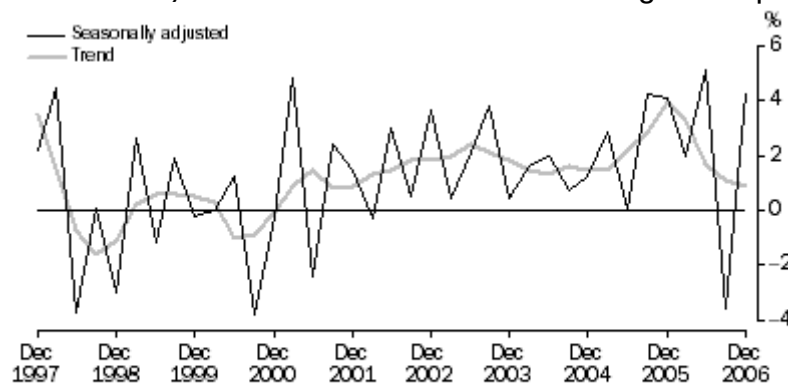


STATE ACCOUNTS

STATE FINAL DEMAND

State final demand in Western Australia rose by 0.9% to \$27,066 million in the December quarter 2006 in trend chain volume terms. Despite the domestic economy continuing to grow, the rate of acceleration in state final demand has slowed steadily over the last four quarters, from 3.9% to 0.9% between the December quarters of 2005 and 2006. Western Australia's rise of 0.9% in the current quarter was the third highest increase among the states and territories, behind the Australian Capital Territory (up 1.6%) and Victoria (1.1%). Nationally, domestic final demand increased by 0.8% in the December quarter 2006.

STATE FINAL DEMAND, Chain volume measures - Change from previous quarter



Source: Australian National Accounts: National Income, Expenditure and Product, cat. no. 5206.0.

However, in seasonally adjusted chain volume terms, Western Australia recorded the

highest rate of growth in state final demand among the states and territories, with an increase of 4.3% (\$1,115 million) to \$27,306 million in the December quarter 2006. More than half of this growth was driven by investment in non-dwelling construction, up \$603 million or 20.5%, while strong contributions also came from machinery and equipment investment (up \$299 million or 12.6%) and household final consumption expenditure (up \$257 million or 2.0%). Detracting from growth in the December quarter 2006 were falls in general government final consumption expenditure (down \$80 million or 2.1%) and ownership transfer costs (down \$63 million or 12.3%).

Prices



PRICES

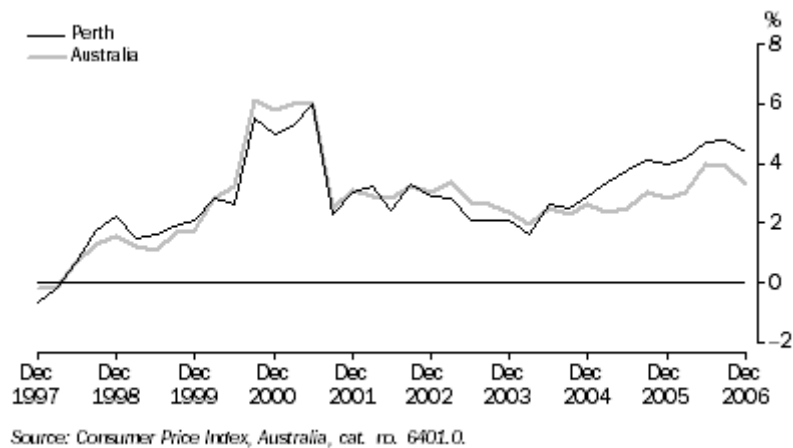
CONSUMER PRICE INDEX

Inflation eased in Perth over the last two quarters, with growth in Perth's consumer price index (CPI) falling to 0.4% in the December quarter 2006, down from 1.8% and 1.1% in the two preceding periods respectively. Nationally, prices fell by 0.1% during the December quarter, the first fall since the March quarter 1999 (down 0.1%). The most significant falls nationally were automotive fuel (down 12.4%), fruit (down 5.2%), pharmaceuticals (down 5.0%) and audio, visual and computing equipment (down 2.7%).

The higher CPI growth in Perth was mainly driven by higher than average prices in recreation (up 2.8%) and housing (up 0.7%). Within recreation, domestic holiday travel and accommodation rose by 9.3% and overseas holiday travel and accommodation was up 5.0%, the result of seasonal increases in accommodation tariffs and airfares. Housing costs also continued to fuel inflation in Perth, with the price of purchasing a house rising by 0.8% during the quarter. Closely related to housing, the price of furniture and furnishings rose by 2.7%.

Similar to the price falls nationally, Perth's CPI inflation was curtailed by falling prices for automotive fuel (down 11.4%), pharmaceuticals (down 3.5%), audio, visual and computing equipment (down 3.2%), toiletries and personal care products (down 2.9%) and fruit (down 1.9%).

CONSUMER PRICE INDEX (ALL GROUPS), Change from same quarter previous year

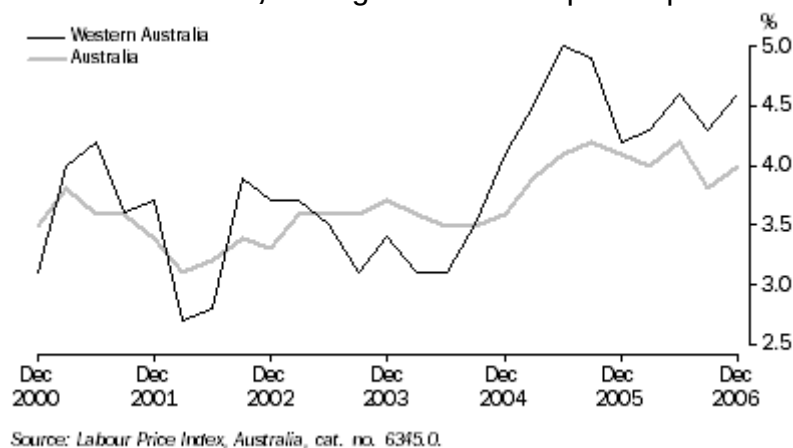


Through the year to December quarter 2006, Perth's CPI rose by 4.4% compared to the national rise of 3.3%. All capital cities recorded price increases during the year, ranging from 2.5% in Hobart to 5.0% in Darwin. The higher result for Darwin was largely due to a 9.5% rise in housing (nearly triple the national average of 3.2%), while Perth also recorded a significant rise in housing of 7.7%. Despite prices continuing to rise across the nation, the rate of growth has eased markedly from 3.9% in the September quarter 2006 to 3.3% in the current period. This slowing of inflation follows a tightening bias by the Reserve Bank of Australia, with increases of official interest rates by 25 basis points in May (5.75%), August (6.00%) and November (6.25%) 2006.

WAGE PRICE INDEX

Wages grew by 1.1% in Western Australia in the December quarter 2006, according to the wage price index of total hourly rates of pay excluding bonuses. Over the year, Western Australia's wages rose by 4.6% through the year to December quarter 2006, higher than the rise of 4.3% through the year to September 2006. Nationally, the wage price index grew by 4.0% through the year to December quarter 2006.

WAGE PRICE INDEX, Change from same quarter previous year



Western Australian industries recording large increases in wages through the year to December 2006 included mining (up 7.0%), property and business services (up 6.0%) and construction (up 5.5%), while professionals (up 5.6%) and managers and administrators (up 5.3%) showed significant increases from an occupation perspective.

Consumption



CONSUMPTION

RETAIL TRADE

Retail turnover in Western Australia rose by 3.1% (\$183 million) in trend terms in the three months to January 2007, compared to the previous three month period. The increase was marginally higher than the 3.0% rise in the three months to October 2006. Nationally, retail turnover was higher by 1.3% in the three months to January 2007, following an increase of 1.4% in the previous three month period.

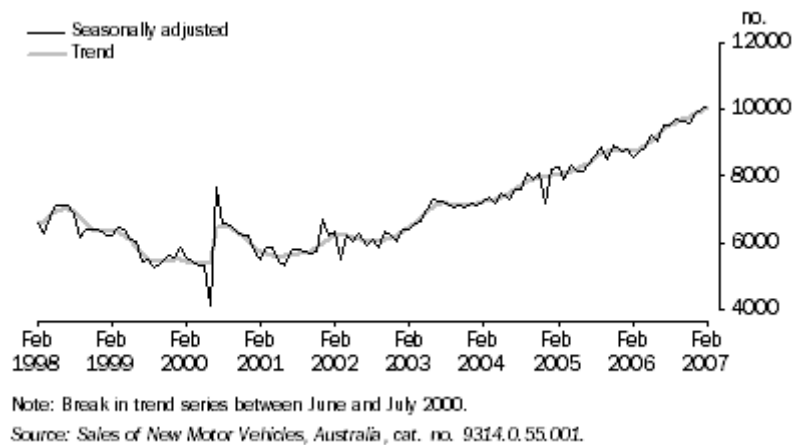


The major industry groups driving Western Australia's retail turnover (trend) in the three months to January 2007 (compared to the three months to October 2006) were food retailing (up \$62 million or 2.6%), other retailing (including pharmaceuticals, cosmetics, toiletries, antiques and used goods, garden supplies, flowers, watches and jewellery) (up \$42 million or 7.9%), and hospitality and services (\$37 million or 5.0%).

NEW MOTOR VEHICLE SALES

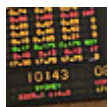
Sales of new motor vehicles have increased in Western Australia over the last thirteen months, from 8,711 vehicles in January 2006 to 10,019 vehicles in February 2007 in trend terms - the first time monthly vehicle sales have surpassed 10,000 in Western Australia. Over half of the growth over this period can be attributed to increased sales of passenger vehicles (51.7%), with sports utility vehicles (30.4%) and other vehicles (17.9%) accounting for the rest.

NEW MOTOR VEHICLE SALES



Over the three months to February 2007, Western Australia's new motor vehicle sales rose by 2.7% (796 vehicles) to 29,791 vehicles in trend terms, compared to the previous three month period. Sports utility vehicles recorded the largest increase over this period, rising by 313 vehicles (5.3%), while strong gains were also recorded for passenger vehicles (up 301 vehicles or 1.8%) and other vehicles (up 182 vehicles or 2.8%). Other vehicles comprise utilities, vans, trucks and buses.

Investment and finance



INVESTMENT AND FINANCE

PRIVATE NEW CAPITAL EXPENDITURE

After peaking at \$4,423 million in the June quarter 2006, business investment in Western Australia declined for the second successive quarter in December 2006, falling 2.9% or \$128 million in trend chain volume terms. The decline was almost equally shared between falling investment on buildings and structures (down \$68 million or 2.4%) and equipment, plant and machinery (down \$61 million or 4.1%).

PRIVATE NEW CAPITAL EXPENDITURE, Chain volume measures

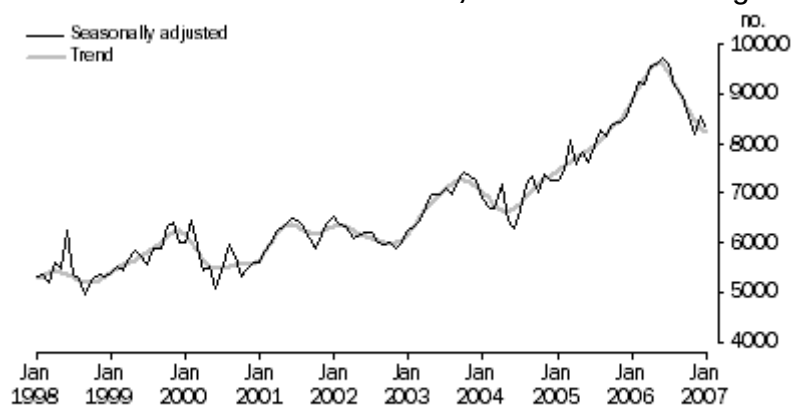


In seasonally adjusted chain volume terms, after falling 17.6% (\$846 million) to \$3,974 million in the September quarter 2006, business investment in Western Australia recovered to \$4,346 million (up 9.4% or \$372 million) in the December quarter 2006. An industry breakdown of state private new capital expenditure is only available in original current price terms, and as a result, does not aggregate exactly to seasonally adjusted totals. However, much of the December quarter investment growth can be attributed to the mining industry, increasing \$698 million or 24.5%, as well as significant contributions from other selected industries (including retail trade, property and business services and construction) (up \$148 million or 14.9%) and manufacturing (up \$94 million or 33.2%).

HOUSING FINANCE COMMITMENTS

The number of dwellings financed for owner occupation in Western Australia has continued to decline in each of the last eight months, from 9,616 commitments in May 2006 to 8,235 commitments in January 2007 in trend terms. Despite the fall, the rate of decline has slowed over the last four months, from -3.0% (-273 commitments) in September 2006 to -1.2% (-101 commitments) in January 2007.

HOUSING FINANCE COMMITMENTS, Number of dwellings financed



Source: Housing Finance, Australia, cat. no. 5609.0.

Between May 2006 and January 2007, in original terms, the number of dwellings financed (owner occupation) by non-first home buyers fell by 2,982 (31.6%) or an average of 373 (3.9%) per month, while the number financed by first home buyers decreased by 521 (34.6%) or a monthly average of 65 (4.3%). In January 2007, there were 6,465 dwellings financed by non-first home buyers and 983 dwellings financed by first home buyers.

In trend terms, the total value of housing finance (owner occupation) in Western Australia fell in each month between August 2006 and January 2007 (a six month period). The value of housing finance peaked at \$2,012 million in July 2006 and declined to \$1,809 million in January 2007.

Construction

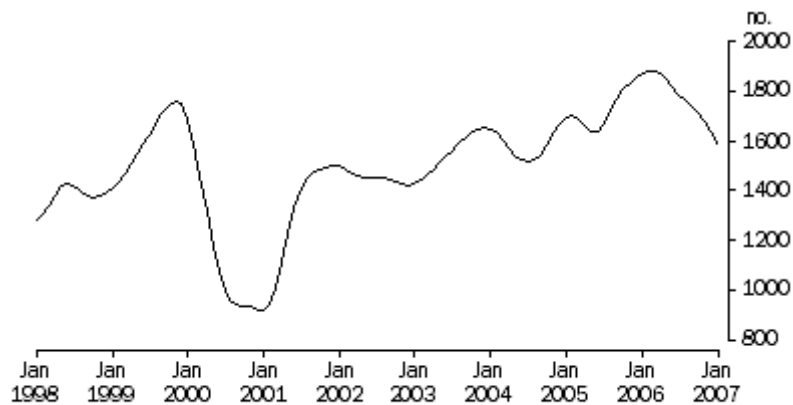


CONSTRUCTION

BUILDING APPROVALS

The number of house approvals in Western Australia has fallen for eleven consecutive months, from 1,886 in February 2006 to 1,584 in January 2007 in trend terms - down 16.0% or 302 approvals. Over the last eleven months, house approvals have dropped by an average monthly rate of 1.6%, with the rate of deceleration increasing from -1.2% (-22 approvals) in September 2006 to -3.1 (-50 approvals) in January 2007. On a more positive note, the number of approvals for other dwellings has increased in each of the last four months in Western Australia, from 458 in September 2006 to 493 in January 2007 - up 7.6% or 35 approvals. Other dwellings include semi-detached houses or townhouses, flats, units and apartments.

NUMBER OF DWELLINGS APPROVED, Houses: Trend



Source: Building Approvals, Australia, cat. no. 8731.0.

In the three months to January 2007, the number of new house approvals in Western Australia fell by 12.9% or 698 approvals, from the previous three month period. This decline coincided with a 9.6% or \$117 million fall in the total value of new house approvals over the same period.

Trade

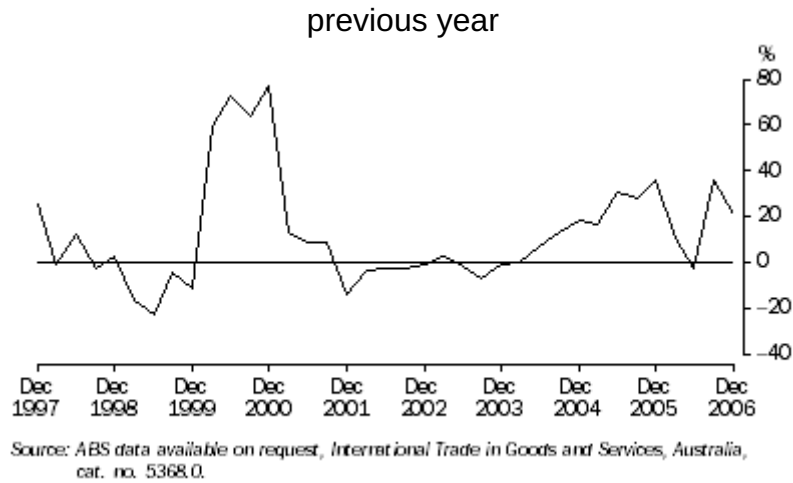


TRADE

BALANCE OF TRADE

Western Australia's trade surplus rose by 21.4% (\$1,748 million) to \$9,919 million through the year to December quarter 2006, following a strong rise in the previous period of 35.7% (\$2,613 million) through the year to September quarter 2006.

VALUE OF WESTERN AUSTRALIA'S TRADE SURPLUS, Change from same quarter



Growth in Western Australia's trade surplus through the year to December quarter 2006 was mainly driven by larger trade surpluses with China (up \$920 million) and India (up \$752 million), as well as with Singapore (up \$301 million) and Finland (up \$293 million). A much lower trade surplus was, however, recorded with the United Kingdom (down \$418 million), while the state's trade deficit worsened with the United States (up \$155 million) and Germany (up \$144 million).

EXPORTS

The value of exports from Western Australia rose by 26.4% (\$3,242 million) to \$15,500 million through the year to December quarter 2006. The major commodities driving the growth in exports were non-monetary gold (up \$846 million or 54.3%), combined confidential items (up \$676 million or 34.0%), iron ore and concentrates (up \$630 million or 18.7%), crude petroleum oils (up \$336 million or 23.7%), nickel (up \$209 million or 140.6%) and nickel ores and concentrates (up \$140 million or 55.4%). The major detractors from exports growth over the period were wheat (down \$29 million or 6.6%) and pigments, paints, varnishes and related materials (down \$20 million or 17.4%).

IMPORTS

The value of imports into Western Australia increased by 36.5% (\$1,494 million) to \$5,581 million through the year to December 2006. The major commodities driving the growth in imports were non-monetary gold (up \$610 million or 100.2%), civil engineering and contractors' plant and equipment (up \$92 million or 76.4%), passenger motor vehicles (up \$82 million or 26.1%) and motor vehicles for transporting goods and specialised vehicles (up \$65 million or 40.5%). The major commodities recording declines in imports over the period were fertilizers (down \$59 million or 94.2%) and crude petroleum oils (down \$56 million or 11.5%).

Mining

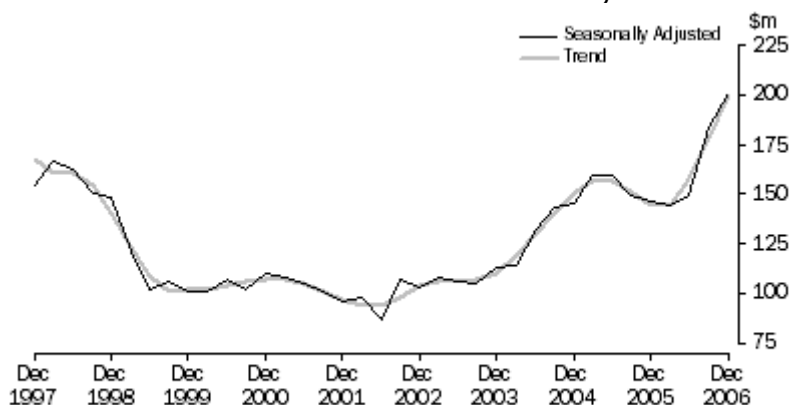


MINING

MINERAL AND PETROLEUM EXPLORATION EXPENDITURE

Expenditure on mineral exploration in Western Australia rose by 12.2% (\$22 million) to \$200 million in the December quarter 2006 in trend terms. This rise followed strong growth in the previous two quarters of 9.1% (\$13 million) and 12.5% (\$20 million) in the June and September quarters 2006 respectively.

MINERAL EXPLORATION EXPENDITURE, Total minerals



Source: Mineral and Petroleum Exploration, Australia, cat. no. 8412.0.

Mineral exploration expenditure in original terms rose by 37.5% (\$59 million) to \$217 million in Western Australia through the year to December quarter 2006. All of the major minerals showed strong increases over this period, with the highlights being iron ore (up \$30 million or 71.5%), gold (up \$17 million or 27.3%), silver-lead-zinc (up \$4 million or 100.0%) and copper (up \$3 million or 118.2%). Furthermore, petroleum exploration expenditure more than doubled in Western Australia through the year to December quarter 2006, increasing by 126.5% (\$193 million) to \$346 million in original terms.

MINERAL AND ENERGY PRODUCTION

Production increased in most of Western Australia's major mineral and energy commodities through the year to December quarter 2006. The largest increases were in the production of zinc (up 118.2%) and diamonds (up 24.7%), while production fell for gold (down 4.7%), nickel (down 3.8%) and coal (down 0.8%) over the period.

Tourism



TOURISM

SHORT-TERM ARRIVALS ON HOLIDAY

The number of overseas holidaymakers arriving in Western Australia rose by 7.0% (5,722) in the December quarter 2006 compared to the same period of 2005. The largest increase

by far was from the United Kingdom and Ireland, with 5,434 (23.2%) more holidaymakers arriving than a year ago - coinciding with the 2006 Ashes Test Series in cricket. The next largest rises were from continental Europe (up 789 or 6.7%) and South Africa (up 445 or 30.8%). Partially offsetting these increases were significantly less holidaymakers from Singapore (down 1,093 or 7.4%), Malaysia (down 652 or 9.2%) and Hong Kong (down 264 or 14.0%).

SHORT-TERM DEPARTURES ON HOLIDAY

The number of Western Australians holidaying overseas rose by 18.8% (13,758) in the December quarter 2006 compared to the corresponding quarter of 2005. Destinations recording the largest increases were some of the state's closest neighbours: Thailand (up 4,108 or 44.0%), Indonesia (up 3,468 or 27.4%) and New Zealand (up 2,452 or 37.9%). There were, however, less Western Australians holidaying in the United States (down 544 or 12.9%) and Singapore (down 126 or 1.6%).

Labour market



LABOUR MARKET

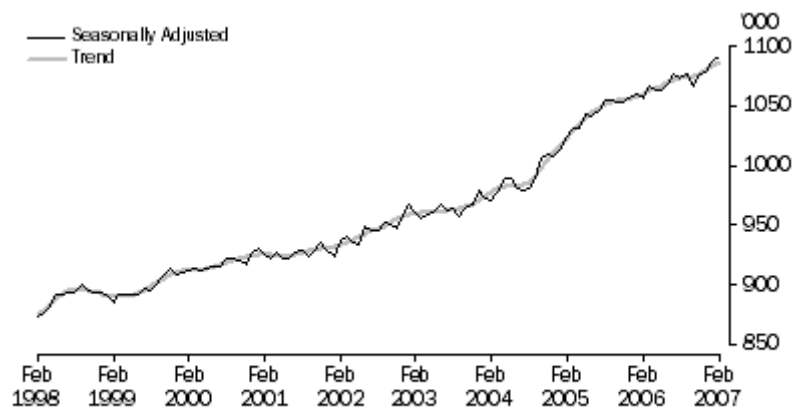
JOB VACANCIES

Western Australia's job vacancies (original) rose for the fourth successive quarter in November 2006, increasing by 5.8% (1,300) to 23,900 vacancies. This extended period of growth has meant there are now 51.0% (8,100) more vacancies than in the November quarter 2005. Nearly all of the rise over the last year has been due to private sector vacancies increasing by 55.3% (8,000), while public sector vacancies have risen by 4.3% (100). Given the growth in job vacancies, employment in Western Australia can be expected to rise in early 2007, if the growing demand for workers can be adequately matched by the labour supply.

EMPLOYMENT

Full-time employment in Western Australia rose by 0.7% (5,100 persons) to 773,100 persons in the three months to February 2007 in trend terms. Most of this rise was in female full-time employment, rising by 3,900 persons (1.6%), and an increase of 1,200 (0.2%) full-time employed males. An estimate of part-time employment in Western Australia showed that female part-time employment rose by 4,800 persons (2.1%) in the three months to February 2007, while male part-time employment fell slightly by 100 persons. Overall, employment in Western Australia increased by 0.9% (9,900 persons) to 1,087,200 persons in the three months to February 2007.

EMPLOYED PERSONS, Total



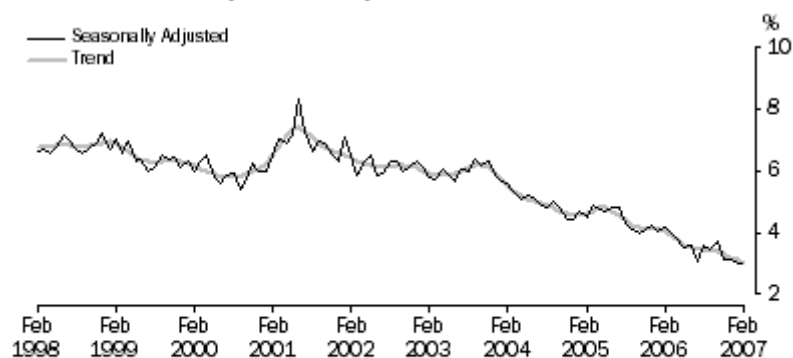
Source: Labour Force Australia, Spreadsheets, cat. no. 6202.0.55.001.

The main industries driving employment growth in Western Australia through the year to February 2007 were education (up 8,000 persons or 12.7%), government administration and defence (up 6,500 persons or 13.7%) and property and business services (up 6,500 persons or 5.2%). The major occupations driving state employment growth over the same period were intermediate clerical, sales and service workers (up 15,800 persons or 9.3%) and professionals (up 11,900 persons or 6.4%).

UNEMPLOYMENT

The number of unemployed persons (trend) in Western Australia fell by 8.4% (3,100 persons) to 33,800 persons in the three months to February 2007. This fall was mainly driven by fewer unemployed females, declining by 2,900 persons (15.6%), while male unemployment fell by only 200 persons. With the total number of unemployed persons declining in the state, the unemployment rate for Western Australia fell from 3.3% in November 2006 to 3.0% in February 2007 in trend terms. Nationally, the unemployment rate remained unchanged at 4.6% over the same period.

UNEMPLOYMENT RATE



(a) Break in time series for trend at April 2001. See the Explanatory Notes in the publication: Labour Force, Australia, cat. no. 6202.0.

Source: Labour Force Australia, Spreadsheets, cat. no. 6202.0.55.001.

PARTICIPATION

Participation of people in Western Australia's labour force was steady at 67.3% of the state's civilian population (aged 15 years and over) between November 2006 and February 2007. The participation rate for Australia was also steady over the period at 64.8%.

Population



POPULATION

ESTIMATED RESIDENT POPULATION

The preliminary estimated resident population for Western Australia was 2,061,477 in the September quarter 2006, an increase of 10,593 persons or 0.52% from the June quarter 2006. The percentage rise in population of 0.52% was the highest across the nation, ahead of the Northern Territory (up 0.51%) and Queensland (up 0.42%), and well above national population growth of 0.33%. In the September quarter 2006, Western Australia recorded 7,070 births and 2,948 deaths, a natural increase of 4,122 persons. Net overseas migration was a gain of 5,582 persons, while net interstate migration also recorded a gain of 889 persons.

Social trends



SOCIAL TRENDS

FAMILIES AND HOUSEHOLDS

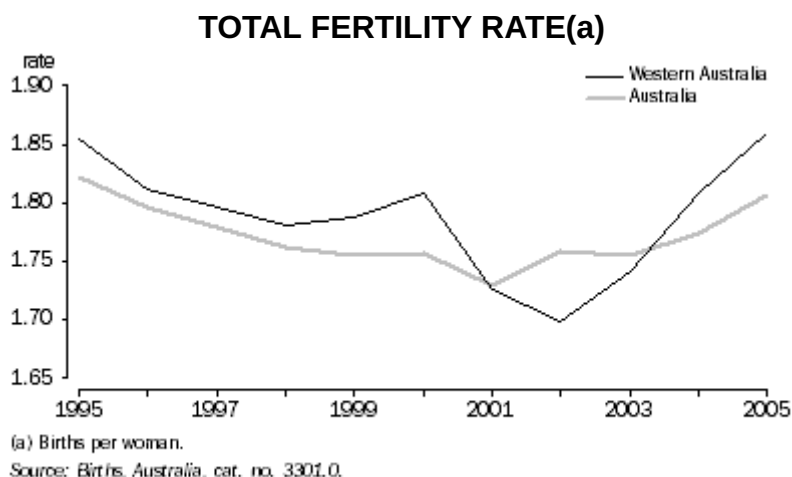
Marriages and divorces

In 2005, 11,100 marriages were registered in Western Australia, representing an increase of 500 (4.9%) from 2004. Western Australia was the only state or territory to record an increase in registered marriages. The crude marriage rate (the number of marriages per 1,000 of the estimated resident population) for Western Australia also increased from 5.4 in 2004 to 5.5 in 2005. However, this remained lower than the rate in 1995 (6.0). For almost two thirds (65.8%) of marriages in Western Australia, both partners were marrying for the first time. This compares to 68.0% nationally. The median age at first marriage for both males and females continues to increase in Western Australia. In 2005, the median age was 30.3 years for men and 28.3 years for women. In 1995, the respective median ages at first marriage were 27.5 and 25.5 years.

In Western Australia, there were 5,300 divorces in 2005. The crude divorce rate (the number of divorces per 1,000 of the estimated resident population) declined from 2.9 in 1995 to 2.6 in 2005. The median duration between marriage and divorce has increased from 8.8 years in 1995 to 9.5 years in 2005. This compares to 8.8 years nationally in 2005.

Fertility

There were 26,300 births registered in Western Australia in 2005. This was 3.8% higher than in 2004 (25,300 births) and 8.2% higher than in 2003 (24,300 births). The total fertility rate (TFR) represents the number of babies that a woman could expect to bear during her reproductive lifetime based on current age-specific fertility trends. The TFR in Western Australia has generally decreased over a long period falling to a low of 1.70 in 2002. Since then, however, it has increased to some extent, reaching 1.81 in 2004 and 1.86 in 2005. Apart from a short period between 2001 and 2003 the TFR for Western Australia has been higher than for Australia over the past decade.



A significant trend over many years has been the increase in births to mothers aged 35 years and over. In Western Australia, the proportion increased from 12.8% in 1995 to 19.7% in 2005. There has been little change in the proportion of births to mothers aged under 20 over the same period (6.0% in 1995 and 5.5% in 2005).

Families and work

In June 2006, 11.6% of children under 15 (47,200) in Western Australia were living in families where no parent was employed, decreasing from 15.7% in June 1996. Over the same period the proportion of couple families with neither parent employed fell from 7.1% to 3.5%. More than half (57.1%) of couple families with children aged under 15 in Western Australia had both parents employed. The proportion of couple families where this is the case has increased steadily from 50.3% in 1996. The proportion of lone parent families where the parent is employed increased from 47.5% to 57.5% over the same period.

About this Release

Contains the most recent statistics for Western Australia covering: state accounts; prices; consumption; investment and finance; construction; trade; mining and energy; agriculture; tourism; labour market; population; crime; and social trends. Quarterly issues include an analysis of recent movements in key state data, as well as feature articles reviewing aspects of Western Australia's economy and/or society.

The resources industry in Western Australia 2001–02 to 2005–06 (Feature Article)

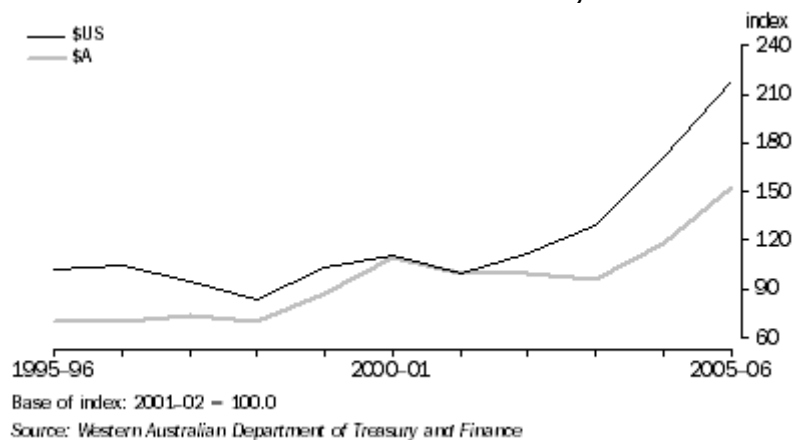
FEATURE ARTICLE 1: THE RESOURCES INDUSTRY IN WESTERN AUSTRALIA 2001–02 TO 2005–06

INTRODUCTION

The resources industry is very important to the economic development of Western Australia, contributing more than one quarter of the state's total production per year and more than half of its exports. At the end of the 1990s, the resources industry was under considerable pressure from falling world mineral and energy prices, as the global economy slowed, particularly in the US and Japan. Many of the state's mining operations were forced to reduce or cease production due to declining commodity prices, while investment expenditure slowed considerably as business expectations diminished.

However, in recent years, rapid industrial growth and infrastructure development in China have boosted world prices for mineral and energy resources to record levels, especially prices of Western Australia's major exports of iron and copper ore, nickel, alumina and liquefied natural gas (LNG). This, in turn, has generated record growth in resource industry investment, as the industry has sought to increase production capacity to secure lucrative long-term supply contracts and take advantage of historically high prices.

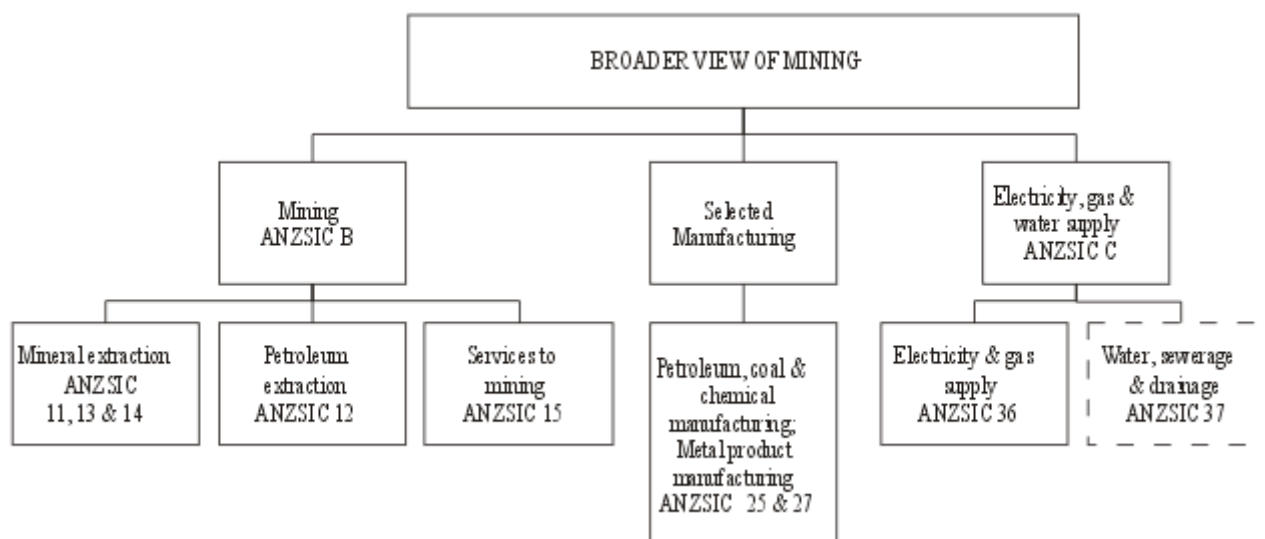
NON-RURAL COMMODITY PRICE INDEX, Western Australia



This article will track the performance of Western Australia's resources industry between 2001-02 and 2005-06 (or the latest year available), during a period of high commodity prices and investment growth. It follows on from a previous analysis of the resources industry, published in the June 2002 edition of Western Australian Statistical Indicators, which combined mining industry activity with downstream mineral processing activity (usually assigned to the manufacturing industry), to present a more complete picture of Western Australia's resources industry.

DEFINING THE BROADER VIEW OF MINING - THE "RESOURCES INDUSTRY"

The broader view of the mining industry presented in the 2002 feature article 'The resources industry in Western Australia', defined the industry using the Australian and New Zealand Standard Industry Classification (ANZSIC). It incorporated the 'mining' ANZSIC Division, 'manufacturing' ANZSIC Classes relevant to basic mineral processing, and the 'electricity and gas supply' ANZSIC Subdivision. Due to changes in the ABS business register, following the introduction of the new tax system in 2000, it is no longer possible to obtain the detailed mining-related manufacturing data required to reproduce this view of Western Australia's resources industry. However, an alternative view can be produced using data available at the broader ANZSIC Subdivision level for mining-related manufacturing activity (as outlined in the flow diagram below).



This alternative approach still captures all of the activity defined under the previous resources industry view, however it also captures the activities of chemical manufacturing and metal product manufacturing (other than refining and smelting of basic minerals), such as iron and steel manufacturing, structural metal products, sheet metal products and fabricated metal products. Data sourced from the ABS Labour Force Survey however, are presented at the more detailed ANZSIC Group level. Additionally, confidentiality restrictions prevent the release of some state data for the ANZSIC Subdivision of electricity and gas supply, and where this is the case, data relating to electricity and gas supply is combined with water supply, sewerage and drainage services.

It should be noted that there are other industries active in the extraction and handling of mineral and energy resources, such as the construction and transport industries. However, there are practical difficulties in isolating the mining-related activities of these industries, including the additional burden that would be placed on businesses in providing the breakdown.

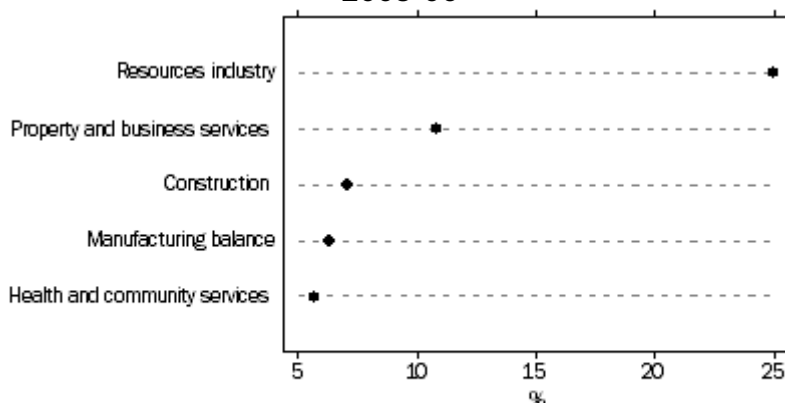
VALUING THE RESOURCES INDUSTRY

Contribution to gross state product

The resources industry is by far the largest contributor to the Western Australian economy, ahead of the industries of property and business services, and construction. From 2001-02 to 2005-06, the resources industry contributed an estimated annual average of 26.7% (\$25,926 million) to Gross State Product (GSP). This was up from an annual average of

23.5% (\$15,698 million) in the period between 1996-97 and 2000-01. Most of the increase occurred in the last three years, with the contribution of the resources industry to GSP rising from 22.5% (\$20,787 million) in 2003-04 to 31.7% (\$37,734 million) in 2005-06.

ESTIMATED AVERAGE ANNUAL CONTRIBUTION TO GSP, By industry - 2001-02 TO 2005-06



Source: Australian National Accounts: State Accounts, cat. no. 5220.0.

Industry value added

Industry value added is an estimate of the difference between the value of output for an industry and the purchases of materials and selected expenses incurred in the production of that output. Since 2001-02, value added by the resources industry increased by 15.8% (\$3,339 million) to \$24,428 million in 2004-05. Resources industry value added increased in most of the years during this period, with the exception of 2003-04. In that year, the resources industry recorded a 2.4% (\$541 million) fall in value added, as the strong Australian dollar led to weaker export earnings. A surge in export prices in the following year, particularly for iron ore, resulted in a 10.1% (\$2,248 million) increase in resource industry value added.

INDUSTRY VALUE ADDED, Resources industry - Western Australia

ANZSIC	Industry	2001-02 \$m	2002-03 \$m	2003-04 \$m	2004-05 \$m
B	Mining(a)	15 240	17 018	16 360	18 175
25	Petroleum, coal, chemical and associated product manufacturing	1 124	1 112	1 223	1 521
27	Metal product manufacturing	2 860	2 701	2 596	2 568
D	Electricity, gas and water supply	1 865	1 890	2 001	2 164
	Total	21 089	22 721	22 180	24 428

(a) Excludes ANZSIC 15 Services to mining.

Mining Operations, Australia, cat. no. 8415.0; Manufacturing Industry, Australia, cat. no. 8221.0; Electricity, Gas, Water and Sewerage Operations, Australia, cat. no. 8226.0.

Sales and service income

Sales and service income comprises income generated by a business from the sale of goods and services, and rent, leasing and hiring. Sales and service income for the resources industry rose by 36.9% (\$13,690 million) from 2001-02 to 2004-05. Mining activity accounted for half of the increase (\$7,063 million). In annual average terms, the fastest growth came from metal product manufacturing, which grew by 17.4% per year, followed by

mining (9.8%) and petroleum, coal, chemical and associated product manufacturing (5.4%).

SALES AND SERVICE INCOME, Resources industry(a) - Western Australia

ANZSIC	Industry	2001-02 \$m	2002-03 \$m	2003-04 \$m	2004-05 \$m
B	Mining(b)	21 719	24 390	24 432	28 782
25	Petroleum, coal, chemical and associated product manufacturing	6 399	6 468	6 929	7 484
27	Metal product manufacturing	8 961	12 951	13 743	14 503
	Total	37 079	43 809	45 104	50 769

(a) Data on ANZSIC D Electricity, gas and water supply is not for publication and does not appear in the table or the total.

(b) Excludes ANZSIC 15 Services to mining.

Mining Operations, Australia, cat. no. 8415.0; Manufacturing Industry, Australia, cat. no. 8221.0; Electricity, Gas, Water and Sewerage Operations, Australia, cat. no. 8226.0.

Operating profit before tax

Operating profit before tax is defined as the profit made by a business before extraordinary items are brought to account and prior to the deduction of income tax and appropriations to owners (eg. dividends). Resource industry profits accounted for over one third (35.0%) of total profits made by Western Australian industries in 2004-05 (excluding agriculture, forestry and fishing, and finance and insurance). Profits in the resources industry rose by 71.0% between 2001-02 and 2004-05, with mining activities accounting for four fifths (83.0%) of the increase (up \$5.7 billion or 95.6%). Petroleum, coal, chemical and associated product manufacturing (up \$250 million or 58.9%) and electricity, gas and water supply (up \$814 million or 33.2%) also recorded substantially higher profits over the period.

OPERATING PROFIT BEFORE TAX, Resources industry - Western Australia

ANZSIC	Industry	2001-02 \$m	2002-03 \$m	2003-04 \$m	2004-05 \$m
B	Mining(a)	5 993	9 909	10 481	11 722
25	Petroleum, coal, chemical and associated product manufacturing	424	425	327	674
27	Metal product manufacturing	851	1 200	927	963
D	Electricity, gas and water supply	2 450	2 744	2 651	3 264
	Total	9 719	14 278	14 386	16 622

(a) Excludes ANZSIC 15 Services to mining

ABS data available on request, Mining Operations, Australia, cat. no. 8415.0; Manufacturing Industry, Australia, cat. no. 8221.0; Electricity, Gas, Water and Sewerage Operations, Australia, cat. no. 8226.0.

Royalties and other taxes

As mineral and energy resources are owned by the community, state and federal governments levy a tax on mining companies in return for the right to explore for and extract these resources. These taxes are commonly referred to as royalties. In Western Australia, the state government receives royalty payments for all land-based minerals, as well as a portion of those royalties paid by the offshore oil and gas operations which are in the federal jurisdiction. The allocation of offshore jurisdictions between the states or territories and the Commonwealth was agreed to in the 1979 Offshore Constitutional Settlement. The agreement assigned to the states and territories responsibility for minerals and petroleum

projects within three nautical miles of the coast, while the Commonwealth took responsibility for resource projects beyond the three nautical mile boundary.

WESTERN AUSTRALIAN GOVERNMENT ROYALTY RECEIPTS, By commodity

Commodity	2001-02 \$m	2002-03 \$m	2003-04 \$m	2004-05 \$m	2005-06 \$m
Iron ore	276.1	286.7	293.7	380.3	679.6
Petroleum and gas(a)	428.3	488.6	416.3	549.7	678.8
Nickel(b)	49.3	60.0	76.8	93.4	86.7
Gold	79.8	85.4	79.5	72.9	81.6
Alumina	61.4	55.0	50.0	54.6	64.1
Diamonds	62.6	89.3	45.0	32.6	48.2
Minerals sands	25.9	26.7	26.2	26.8	30.8
Other	44.7	47.3	46.1	45.6	66.7
Total	1 028.1	1 139.0	1 033.6	1 255.9	1 736.6

(a) Includes North West Shelf royalties received by the Western Australian Government in the form of a Commonwealth Grant.

(b) Includes cobalt, palladium and platinum.

Western Australian Department of Industry and Resources, Mineral and Petroleum Statistics Digest 2005-06.

Royalties from the resources industry contributed about one tenth of Western Australia's consolidated revenue between 2001-02 and 2005-06. Mining royalties as a component of state general government consolidated revenue varied from 8.0% (\$1,034 million) in 2003-04 to 10.7% (\$1,737 million) in 2005-06. In 2005-06, iron ore and petroleum each contributed 39.1% of total royalties, while nickel (5.0%) and gold (4.7%) were the other major contributors.

Iron ore mining generated the largest increase in royalty revenue in the last two years, reflecting an increase in iron ore production and a doubling of iron ore export prices over the period. Royalty revenue from iron ore extraction rose from \$294 million in 2003-04 to \$680 million in 2005-06 (up \$386 million or 131.4%), with most of the growth occurring in 2005-06 (up \$299 million or 78.7%). Petroleum extraction added a further \$251 million (58.5%) to royalty revenue between 2001-02 and 2005-06. Diamond mining was the only major mineral to record a decline in royalties, down \$14 million (23.0%) over the five years.

The Australian Government also levies a number of taxes and royalties on the petroleum and gas extraction industry operating off the coast of Western Australia. Petroleum Resource Rent Tax (PRRT) is levied on profits from the extraction of crude oil and gas in Australian Government waters, however, it is not applied to value added projects such as LNG from the North West Shelf project. Instead, the Australian Government Royalty is levied on the value of petroleum and gas production on the North West Shelf. About two thirds of the total value of the royalty is paid back to the Western Australian Government by the Commonwealth each year, a sum of \$609 million in 2005-06.

Crude oil excise applies to crude oil extracted from waters off the Western Australian coast, onshore areas, and the North West Shelf project area in Australian waters. In 2005-06, the value of this excise was \$291 million. The federal government has waived the Crude Oil Excise on production from Barrow Island, instead receiving 75% of Resource Rent Royalty (RRR) levied by the state government - a figure worth \$36 million in 2005-06. The Commonwealth also receives a share of certain Western Australian internal waters royalties from projects pre-dating the Offshore Constitutional Settlement, worth \$20 million in the

latest year. The value of royalties and taxes received by the Australian Government is summarised in the table below. It includes an estimate of the PRRT received from projects in Commonwealth waters off the Western Australian coast.

AUSTRALIAN GOVERNMENT PETROLEUM AND GAS ROYALTIES AND TAXES, Sourced in Western Australia

	2001-02 \$m	2002-03 \$m	2003-04 \$m	2004-05 \$m	2005-06 \$m
Crude Oil Excise	354	368	313	618	291
Petroleum Resource Rent Tax (PRRT)(a)	544	686	467	584	804
Internal Waters Royalty	15	15	16	18	20
Resource Rent Royalty (RRR) - Barrow Island	34	42	23	29	36
North West Shelf Royalty(b)	205	236	200	264	317
Total	1 152	1 347	1 019	1 513	1 468

(a) Estimated based on 40% of total Australian PRRT.

(b) Excludes North West Shelf Royalty remitted to the Western Australian Government.

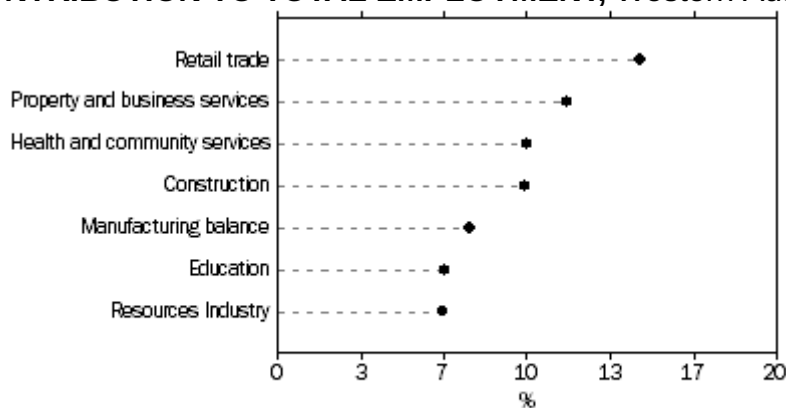
Western Australian Department of Treasury and Finance; Department of Industry, Tourism and Resources.

LABOUR

Number of employed persons

Despite the enormous contribution the resources industry makes to the Western Australian economy in terms of value added, investment and export revenue, it only ranks as the states seventh largest employer from a total of 17 industries. In 2005-06, 69,650 persons were employed in Western Australia's resources industry, 6.6% of total employment in the state. Nationally, the resources industry employed only 2.7% of Australia's working people.

INDUSTRY CONTRIBUTION TO TOTAL EMPLOYMENT, Western Australia - 2005-06



Source: Labour Force Survey, Australia, cat. no. 6202.0.

The largest employer in Western Australia's resources industry was metal ore mining, which employed 25,100 persons in 2005-06, accounting for 36.0% of all jobs in the resources industry. It was followed by services to mining with 10,300 persons or 14.8% of total resource industry employment, and basic non-ferrous metal manufacturing with 8,100 persons employed or a 11.6% share of resource industry employment in 2005-06.

NUMBER OF EMPLOYED PERSONS, Resources industry - Western Australia

ANZSIC	Industry	2001-02 '000	2002-03 '000	2003-04 '000	2004-05 '000	2005-06 '000
11	Coal mining	0.8	1.1	0.8	0.9	1.6
12	Oil and gas extraction	1.4	1.6	2.6	2.8	4.5
13	Metal ore mining	19.4	22.1	22.3	20.0	25.1
14	Other mining	2.6	2.0	2.9	3.6	3.3
15	Services to mining	7.5	7.8	9.4	9.3	10.3
	Mining uncategorised(a)	0.4	0.2	0.5	5.6	5.5
251	Petroleum refining	1.7	0.5	0.8	0.7	0.8
271	Iron and steel manufacturing	2.7	2.8	2.6	2.8	4.6
272	Basic non-ferrous metal manufacturing	3.5	6.6	4.5	6.1	8.1
36	Electricity and gas supply	3.4	4.3	3.9	6.2	5.9
	Total	43.4	49.0	50.3	58.0	69.7

(a) Activities which are too broad to be represented within a specific mining classification.

ABS data available on request, Labour Force Survey, Australia, cat. no. 6202.0.

Strong employment growth in the resources industry in recent years has been underpinned by increased investment and production activity, as the industry has responded to accelerating international demand for minerals and energy. Overall, employment in the resources industry grew by 26,225 persons (60.4%) between 2001-02 and 2005-06, with almost half of those jobs created in the last year (11,700 persons or 44.6%). The metal ore mining industry accounted for 5,700 (29.4%) new jobs over the period, while basic non-ferrous metal manufacturing also showed strong growth, with employment increasing by 4,600 persons or 131.4%. The fastest growth in employment was in oil and gas extraction, which gained 3,100 persons, a 221.4% increase between 2001-02 and 2005-06. The only industry to record a decline in the number of employed persons over the period was petroleum refining, falling from 1,700 persons in 2001-02 to 800 persons in 2005-06.

Hours worked

Full-time workers

Full-time employment in Western Australia's resources industry grew by 55.7% (23,200) to 64,825 persons between 2001-02 and 2005-06, which contributed to a 56.7% rise in total weekly hours worked over the same period. With the number of full-time employed persons increasing by less than the total hours worked, the average hours worked by full-time workers in the resources industry rose marginally from 45.2 per week in 2001-02 to 45.5 per week in 2005-06. This was in line with rising production and investment levels, as well as difficulties in filling skilled positions in the industry.

Part-time workers

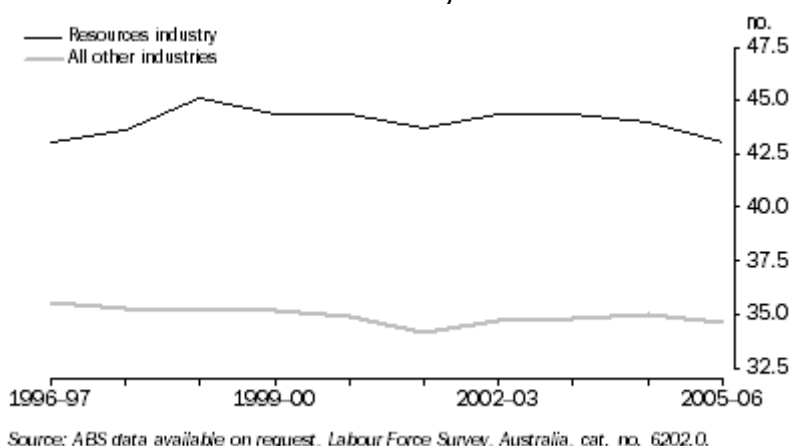
Growth in part-time employment was strong in Western Australia's resources industry between 2001-02 and 2005-06, rising by almost three times the rate of full-time employment - up 156.0% (2,925) to 4,800 persons. However, although total weekly hours worked by part-time workers almost doubled over the same period (up 97.8%), it was still far short of the rise in part-time employment, and as a consequence, average weekly hours worked by part-time workers fell dramatically, from 19.7 per week in 2001-02 to 15.3 per week in 2005-06.

Total workers

When combining the hours worked by full-time and part-time workers in the resources industry, average weekly hours worked fell slightly, from 44.1 hours in 2001-02 to 43.4 hours in 2005-06. This decline was the result of the large rise in the proportion of part time workers in the resources industry, increasing from 4.3% to 6.9%, mostly in 2005-06. In that year, part-time workers more than doubled from 2,275 to 4,800 (111.0%), while full-time employment rose by only 16.7% from 55,550 to 64,825 persons.

The slight fall in average weekly hours worked in the resources industry was in contrast to a small rise in average weekly hours worked in all other Western Australian industries, from 34.2 in 2001-02 to 34.6 in 2005-06. Despite this, people in the resources industry still worked far greater average weekly hours than in other Western Australian industries. In each year between 2001-02 and 2004-05, average weekly hours worked in the resources industry remained above 43 hours per week, while across all other industries they worked around 35 hours per week.

AVERAGE WEEKLY HOURS WORKED, Total workers - Western Australia



Mining activities recorded the highest average weekly hours worked in the resources industry. Metal ore mining, 47.4 hours, had the longest working week in 2005-06. When full-time employment is considered in isolation, the average weekly hours recorded for metal ore mining was 50.5 hours in 2005-06. The rest of the mining sector ranged from a high of 46.3 hours per week in uncategorised mining to a low of 41.6 hours per week in oil and gas extraction.

AVERAGE WEEKLY HOURS WORKED, Resources industry - Western Australia

ANZSIC	Industry	2001-02 no.	2002-03 no.	2003-04 no.	2004-05 no.	2005-06 no.
11	Coal mining	45.3	40.8	43.1	35.8	42.0
12	Oil and gas extraction	40.0	45.2	41.3	51.1	41.6
13	Metal ore mining	46.9	47.8	46.3	47.7	47.4
14	Other mining	42.3	37.4	48.4	48.0	45.6
15	Services to mining	43.7	46.2	46.3	44.9	44.1
	Mining uncategorised(a)	40.9	64.6	62.9	46.6	46.3
251	Petroleum refining	44.1	43.7	39.0	34.9	32.4
271	Iron and steel manufacturing	39.7	44.4	42.2	40.1	39.3
272	Basic non-ferrous metal manufacturing	40.9	36.9	39.1	35.7	36.1
36	Electricity and gas supply	39.1	42.3	38.5	38.4	38.1
	Total	44.1	44.8	44.7	44.4	43.4

(a) Activities which are too broad to be represented within a specific mining classification.

The average weekly hours worked by petroleum refining was the shortest working week in the resources industry at 32.4 hours in 2005-06, while basic non-ferrous metal manufacturing had the second lowest average working week of 36.1 hours.

Average weekly earnings of full-time adults

Average weekly earnings of full-time adults employed in Western Australia's resources industry rose by \$277 (23.2%) between 2001-02 and 2005-06. This rise was greater in dollar terms than the state average increase of \$204 (23.9%). As a result, resource industry average weekly earnings were \$413 (39.0%) higher than state average earnings in 2005-06, \$1,473 compared to \$1,060.

All of the sectors of Western Australia's resources industry recorded average weekly ordinary time earnings above the state average of \$1,060 in 2005-06. Within the industry, the highest earnings were in oil and gas extraction at \$2,371 per week, while the lowest earnings were in petroleum, coal, chemical and associated product manufacturing at \$1,205 per week.

AVERAGE WEEKLY ORDINARY TIME EARNINGS, Full-time adults - Western Australia

		2001-02	2002-03	2003-04	2004-05	2005-06
		\$	\$	\$	\$	\$
ANZSIC Industry						
11	Coal mining	1 502.75	1 528.00	1 592.90	1 689.43	1 692.90
12	Oil and gas extraction	2 164.83	2 008.65	2 123.33	2 258.20	2 371.30
13	Metal ore mining	1 443.43	1 531.70	1 623.58	1 636.38	1 701.73
14	Other mining	1 028.58	1 281.83	1 345.75	1 484.43	1 622.50
15	Services to mining	1 042.85	1 216.68	1 333.10	1 417.68	1 409.38
25	Petroleum, coal, chemical and associated product manufacturing	908.13	953.40	1 206.80	1 242.18	1 204.70
27	Metal product manufacturing	888.75	944.30	1 016.63	1 125.38	1 298.63
36	Electricity and gas supply	1 070.80	1 122.80	1 190.93	1 239.40	1 337.73
	Total resources industry	1 195.29	1 253.46	1 326.70	1 387.33	1 472.71
	All Industries	855.43	893.65	942.95	999.18	1 059.70

ABS data available on request, Average Weekly Earnings, Australia, cat. no. 6302.0.

The largest increases in average weekly earnings within the resources industry were recorded by other mining, which grew by 57.7% (\$594) to \$1,622 between 2001-02 and 2005-06, followed by metal product manufacturing with 46.1% (\$410) to \$1,299. Other mining mainly comprises the activities of gravel and sand quarrying and other construction material mining.

Methods of setting pay

Average hourly cash earnings were much higher in Western Australia's resources industry than across the rest of state economy. The resources industry recorded average hourly cash earnings for non-managerial employees of \$34.90 in May 2006, compared to the state average of \$26.50. Average hourly cash earnings in the resource industry ranged from a low of \$16.00 for employees whose pay was determined by awards to a high of \$37.90 for those employees subject to registered individual agreements. The hourly earnings for resource

industry employees on awards was lower than the state average of \$17.20 in May 2006. For registered individual agreements, resource industry average hourly earnings were higher than the state average of \$33.40.

METHODS OF SETTING PAY, Average cash earnings of non-managerial employees(a) - Western Australia

	RESOURCES INDUSTRY			ALL INDUSTRIES		
	Average weekly total cash earnings	Average weekly hours paid for	Average hourly cash earnings	Average weekly total cash earnings	Average weekly hours paid for	Average hourly cash earnings
	\$	no.	\$	\$	no.	\$
Award only	335.80	21.00	16.00	470.10	27.30	17.20
Registered collective agreements	1 543.10	44.20	34.90	848.00	30.90	27.40
Unregistered collective agreements	np	np	np	898.20	35.50	25.30
Registered individual agreements	1 719.50	45.40	37.90	1 255.80	37.60	33.40
Unregistered individual arrangements	1 423.40	43.50	32.70	945.40	35.40	26.70
All methods of setting pay	1 516.30	43.50	34.90	869.30	32.80	26.50

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Comprises regular wages and salaries in cash, including amounts salary sacrificed.

ABS data available on request, Employee Earnings and Hours, Australia, cat. no. 6306.0.

Within the resources industry, the highest average hourly cash earnings for non-managerial employees were recorded in mining, with an average of \$45.80 in May 2006. Under registered collective agreements, mining employees received an average hourly pay of \$49.90, while those subject to individual arrangements received \$46.00 under registered agreements and \$45.40 under unregistered arrangements. Average hourly cash earnings in petroleum and metal product manufacturing were \$40.20, and ranged between \$18.50 for award based pay and \$42.00 for registered collective agreements. The electricity, gas and water supply industry recorded average hourly cash earnings of \$38.40 in May 2006. It should be noted that this analysis is based on the workplace relations environment prior to the introduction of the Workplace Relations Amendment (Work Choices) Act 2005.

Occupational health and safety

As well as the personal cost to individual workers, workplace injuries and diseases are costly to industry through lost production and compensation costs. The Western Australian Department of Consumer and Employment Protection monitors the incidence of workplace injuries and diseases through its Worksafe program. This analysis focusses on occurrences of workplace injury or disease that resulted in a fatality, permanent disability or time lost from work of at least one day or one shift.

In 2004-05, the resources industry in Western Australia reported 2,318 occurrences of lost

time injuries or diseases. This represented 11.7% of the total incidents reported in Western Australia in that year. It was a slight improvement on 2002-03, when the resources industry accounted for 11.9% of lost time incidents in the state.

The frequency rate of lost time injuries or diseases, which is defined as the number of lost time injuries or disease incidents for each one million hours worked, shows a relatively high rate of injury or disease for many activities within the resources industry in Western Australia. Metal product manufacturing recorded the highest rate of lost time injuries or diseases in 2004-05 at 37.3 incidents per million hours worked - more than two and a half times the state average of 14.1 incidents per million hours worked. Petroleum, coal, chemical and associated product manufacturing (17.6), other mining (15.7) and services to mining (14.4) were the other industries to record frequency rates above the state average in 2004-05.

FREQUENCY RATE OF LOST TIME INJURIES AND DISEASES(a), Resources industry - Western Australia

ANZSIC	Industry	2002-03 no.	2003-04 no.	2004-05 no.
11	Coal mining	12.5	14.8	13.8
12	Oil and gas extraction	15.0	7.0	7.5
13	Metal ore mining	7.1	6.4	8.0
14	Other mining	22.0	18.9	15.7
15	Services to mining	15.4	10.7	14.4
25	Petroleum, coal, chemical and associated product manufacturing	13.4	17.2	17.6
27	Metal product manufacturing	33.8	35.4	37.3
36	Electricity and gas supply	5.4	6.3	4.1
	Western Australia	13.6	13.6	14.1

(a) Number of lost time injuries and diseases per one million hours worked.
Western Australian Department of Consumer and Employment Protection.

Half of the sectors within Western Australia's resources industry recorded increases in the frequency rate of lost time injuries or diseases (per million hours worked) between 2002-03 and 2004-05, ranging from a rise of 0.9 incidents in metal ore mining to a rise of 4.2 incidents in petroleum, coal, chemical and associated product manufacturing. The sectors recording decreases in their frequency rate of lost time injuries or diseases, ranged from a decline of 1.0 incidents in services to mining to a decline of 7.5 incidents in oil and gas extraction.

EDUCATION AND TRAINING

Participation in education and training

Due to data limitations, the following analysis of education and training only relates to the mining component of the resources industry.

There have been mixed results in the participation of mining industry workers in education and training in recent times. The proportion of workers who completed work-related training in the mining industry dropped from 76.8% to 72.5% between 2001 and 2005. However, the number of workers completing training rose by 15.0% (3,640) to 27,840 workers. One of the

reasons behind the falling proportion of people completing training may have been the rise in workers enrolled to study for an educational qualification, which increased from 11.4% (3,600 workers) to 13.8% (5,299 workers) over the period.

The total number of training hours undertaken by workers in the mining industry also fell, from 1,630,900 hours in 2001 to 899,100 hours in 2005, a drop of 44.9% or 731,800 hours. Despite the falling number of training hours, the number of work-related courses completed increased from 50,000 to 54,900 over the period.

PARTICIPATION IN EDUCATION AND TRAINING, Mining - Western Australia

	2001		2005	
	%	no.	%	no.
Completed a work-related training course	76.8	24 200	72.5	27 840
Did not completed a work-related training course	23.2	7 300	27.5	10 560
Enrolled to study for educational qualification	11.4	3 600	13.8	5 299
Did not enrol to study for educational qualification	88.6	27 900	86.2	33 101
Total training hours	..	1 630 900	..	899 100
Work-related courses completed	..	50 000	..	54 900

.. not applicable

Education and Training Experience, Australia, cat. no. 6278.0.

Apprenticeships and traineeships

The three most prominent occupations in Western Australia's mining industry are intermediate production and transport workers, professionals, and tradespersons and related workers. In 2005-06, nearly two thirds of all mining workers were employed in one of these occupations: 24.6% (12,350) in intermediate production and transport workers, 22.9% (11,492) in professionals and 20.7% (10,402) in tradespersons and related workers.

Two of these occupations were also among the most rapidly growing occupations in the mining industry. Between 2001-02 and 2005-06, people employed as intermediate production and transport workers rose by 67.8% (4,989), while tradespersons and related workers rose by 70.9% (4,314). Growth in mining professionals ranked 5th largest, up by 20.5% (1,958).

In 2005-06, the mining industry in Western Australia employed 13.1% of the state's intermediate production and transport workers, 7.0% of its tradespersons and related workers, and 4.9% of its managers, administrators and professionals. These occupations have shown some of the largest increases in apprentice and trainee numbers in recent years.

Among trades and related occupations, the number of persons commencing apprenticeships increased from 4,200 in 2001-02 to 8,700 in 2005-06. There was also 600 more people commencing apprenticeships and traineeships in managers, administrators and professionals. Commencements of apprenticeships and traineeships fell by 300 in intermediate production and transport between 2001-02 and 2005-06, although there was strong growth in 2005-06 of 500 persons.

More important to the immediate supply of skilled workers to the state economy, apprenticeship and traineeship completions have also risen solidly. Between 2001-02 and 2005-06, the number of people finishing their training rose by 1,100 in the occupation of intermediate production and transport workers. Completions also rose by 300 in tradespersons and related workers and by 200 in managers, administrators and professionals - increases were larger for these two occupations in 2005-06, rising by 400 and 300 people respectively.

APPRENTICES AND TRAINEES, By occupation - Western Australia

	2001-02 no.	2002-03 no.	2003-04 no.	2004-05 no.	2005-06 no.
COMMENCEMENTS					
Managers, administrators and professionals	-	-	100	400	600
Associate professionals	600	500	500	600	700
Tradespersons and related workers	4 200	5 000	5 900	7 400	8 700
Intermediate production and transport workers	2 700	2 000	2 400	1 900	2 400
Labourers and related workers	2 100	2 500	2 500	2 500	2 500
Clerical, sales and service workers	4 700	5 600	6 600	7 200	6 500
COMPLETIONS					
Managers, administrators and professionals	100	-	-	-	300
Associate professionals	400	500	300	400	400
Tradespersons and related workers	2 900	2 900	2 900	2 800	3 200
Intermediate production and transport workers	200	300	1 400	1 700	1 300
Labourers and related workers	800	900	1 100	1 400	1 200
Clerical, sales and service workers	2 200	2 500	2 800	3 200	4 600

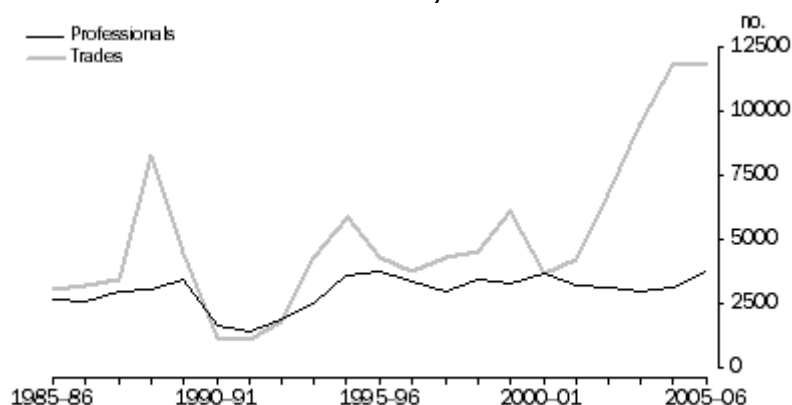
- nil or rounded to zero (including null cells)

National Centre for Vocational Education Research, Australian Vocational Education and Training Statistics.

Skilled vacancies

Rapid growth in Western Australia's resources industry has increased the demand for skilled labour in the state. Although skilled vacancy counts are not available by industry, it is reasonable to conclude that the resources industry has felt the full effect of the current skills shortage. This is because much of the rise in skilled vacancies has been in occupations with a strong association to the resources industry.

SKILLED VACANCIES, Western Australia



Source: Department of Employment and Workplace Relations.

Skilled vacancies in the occupations of tradespersons and related workers, and professionals have risen sharply since 2001-02. Trades vacancies almost tripled, rising by 179.5% (7,537) to 11,734 vacancies in 2005-06, while professional vacancies increased by 17.0% (537) to 3,696 vacancies. The trades experiencing the largest increases in skilled vacancies between 2001-02 and 2005-06 were construction and metal trades, rising by 3,108 (358.6%) and 1,742 (201.7%) vacancies respectively. Electrical and electronics (up 997 vacancies or 255.8%) and automotive (up 555 vacancies or 91.3%) trades also recorded strong gains. The professions with the largest increases in skilled vacancies were building and engineering professionals and associate professionals (up 749 vacancies or 100.6%), science professionals (up 135 vacancies or 77.4%) and medical and science technical officers (up 60 vacancies or 247.9%).

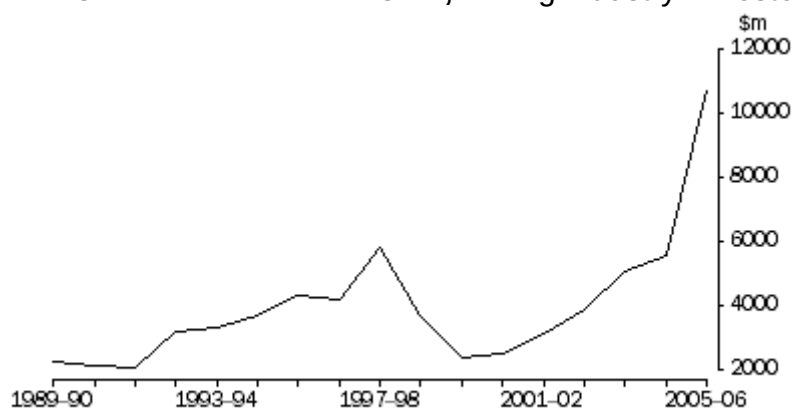
INVESTMENT

Private new capital expenditure

As with the analysis of education and training, business investment data is only available for the mining component of the resources industry.

The value of investment expenditure by Western Australia's mining industry has grown tremendously in recent years, fuelled by the strong demand for resource commodities from Asia. From 2001-02 to 2005-06, new capital investment in the mining sector more than tripled (up \$7,642 million or 247.2%) to reach over \$10 billion in 2005-06. At the same time, the contribution of mining to total state investment has increased from just over half in 2001-02 (51.6%) to almost two thirds in 2005-06 (65.2%). Investment growth was particularly strong in mining in 2005-06, almost doubling by \$5,202 million (94.1%) to \$10,733 million.

PRIVATE NEW CAPITAL EXPENDITURE, Mining industry - Western Australia



Source: Private New Capital Expenditure and Expected Expenditure, Australia, cat. no. 5625.0.

Investment in Western Australia's mining industry grew by an average of 36.5% per year between 2001-02 and 2005-06. This has been in direct contrast to the decline between 1996-97 and 2000-01 (-11.9% per year) and more than twice the growth experienced during the state's last investment boom (14.7% per year from 1993-94 to 1997-98).

When analysing the quarterly data, Western Australia's mining investment fell sharply in the

September quarter 2006, down 22.0% (\$801 million) to \$2,847 million, following five quarters of consecutive strong growth between the June quarters of 2005 and 2006. The fall in mining investment was the first since the March quarter 2005 (down \$210 million or 14.7%). Anecdotal evidence suggests that much of the slowdown during the quarter was due to delays in completing new projects, and in some cases, the deferment of proposed projects.

The softening in mining investment in the September quarter 2006 centred around the state's increasing shortage of skilled labour and rising labour costs, as well as the higher costs of energy and materials. According to media reports, the cost of BHP Billiton's Ravensthorpe nickel mine more than doubled from its original estimate of around \$1 billion, while Chevron's Gorgon liquified natural gas project at Barrow Island was likely to cost a further \$5 billion (up to \$16 billion). The estimated cost of the fifth train on the North West Shelf increased by 21.3% to \$2.4 billion between the June and September quarters of 2006, while Woodside Petroleum's Pluto LNG project could cost twice its initial estimate, up to \$10 billion. The final cost of the Boddington gold mine south of Perth almost doubled to \$1.8 billion and Fortescue Metals Group confirmed a \$1 billion rise in the total cost of its Pilbara iron ore project. BHP has also deferred a proposed \$900 million expansion of its Worsley alumina refinery in light of cost pressures. **[Western Australian Business News, 14 September 2006, p.17]**

However, since these reports were made, Western Australia's mining investment in new capital recovered substantially in the December quarter 2006, increasing by 24.5% (\$698 million) to \$3,545 million.

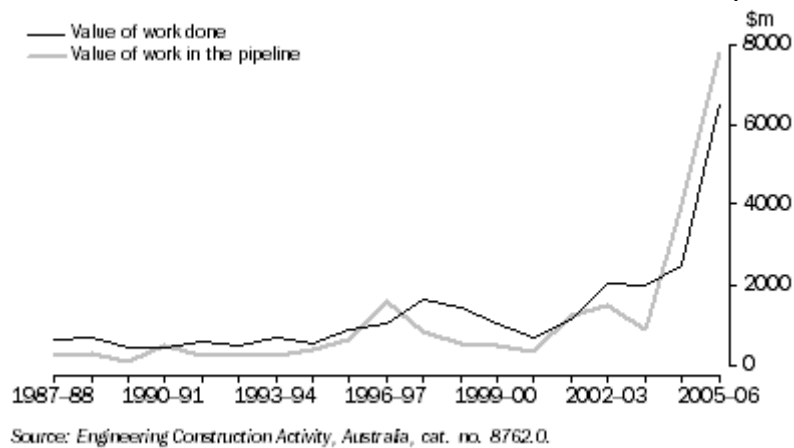
Construction

Since the beginning of the commodities boom, Western Australia's resources industry has invested heavily in the development of new infrastructure and productive capacity to meet the growing demand for raw materials. The industry is developing new mines, upgrading existing sites and improving transport capacity in the form of rail, ports and pipelines. It has also expanded its downstream minerals and energy processing plants across the state.

Although it is not possible to completely isolate the resources industry, a number of categories of engineering construction activity are closely related to the resources industry. Much of the 'heavy industry' engineering construction activity (including the construction of production, storage and distribution facilities; refineries; pumping stations; mine sites; chemical plants; blast furnaces; steel mills; other industrial processing plants and ovens) is directly associated with the resources industry, while 'electricity generation, transmission and distribution, etc; and pipelines' and 'bridges, railways and harbours' are also connected.

Heavy industry engineering construction activity increased more than five and a half times in Western Australia, from a value of \$1,127 million in 2001-02 to \$6,522 million in 2005-06 (up \$5,395 million or 478.9%). Coupled with this rise has been a rapid build-up of construction work in the pipeline. The value of heavy industry engineering construction yet to be completed at the end of 2005-06 was \$7,770 million, more than six times higher (up \$6,550 million or 537.1%) than in 2001-02 (\$1,220 million). Much of the increase can be attributed to the rapid pace with which the industry has had to respond to surging global demand for raw materials, as well the constraints of skilled labour and materials shortages.

HEAVY INDUSTRY ENGINEERING CONSTRUCTION ACTIVITY, Western Australia



The value of engineering work done on 'electricity generation, transmission and distribution, etc.; and pipelines' (up \$826 million or 262.5%) and 'bridges, railways and harbours' (up \$1,143 million or 664.9%) also rose substantially in Western Australia between 2001-02 and 2005-06. It is reasonable to expect that a significant amount of this growth has been due to the expansion of the state's resources industry and the flow-on effects to the rest of the economy.

Major resource-related projects

According to the Western Australian Department of Treasury and Finance, the major resource-related projects undertaken in Western Australia over the last five years have included (from most to least recent):

- BHP Billiton's Ravensthorpe nickel project (\$2.7 billion);
- North West Shelf consortium's LNG project and fifth train (\$2.4 billion);
- Newmont/AngloGold's expansion of the Boddington gold mine, plus 100 megawatt gas-fired power station (\$2.0 billion);
- BHP Billiton's iron ore Rapid Growth Project 3 (\$1.7 billion);
- North West Shelf Consortium's Angel gas field development (\$1.5 billion);
- Hancock Prospecting Hope Downs iron ore project (\$1.3 billion);
- Rio Tinto's expansion of Argyle diamond mine (\$1.2 billion);
- Hamersley Iron's Yandicoogina iron ore mine and Port of Dampier upgrade (\$1.6 billion);
- Woodside's Enfield, Vincent and Laverda oil and gas project (\$1.5 billion);
- BHP Billiton's Rapid Growth 2 iron ore expansion (\$750 million);
- Burrup Fertilisers' ammonia plant on the Burrup Peninsula (\$630 million);
- Alcoa's Pinjarra alumina refinery expansion (\$440 million);
- Newcrest's Telfer Deeps (underground phase) gold mine expansion (\$424 million);
- HIs melt pig-iron plant in Kwinana (\$400 million);
- Newcrest Mining Telfer Deeps gold mine expansion (\$975 million);
- the fourth LNG train expansion on the North West Shelf (\$2.4 billion);
- Mining Area C iron ore mine (including associated port and rail infrastructure) (\$1.0 billion); and
- Mt Margaret nickel project (\$1.3 billion).

Mineral and petroleum exploration

In addition to capital investment in production capacity and transport infrastructure, Western Australia's resources industry continues to invest heavily in exploration to unlock more of the state's mineral and energy wealth. Between 2001-02 and 2005-06, a total of \$5,335 million was spent on mineral and petroleum exploration in Western Australia, 55.8% of the national total of \$9,558 million. In 2005-06, 47 cents of every dollar spent on mineral and petroleum exploration in Australia was spent in Western Australia. The state's exploration expenditure totalled \$1,184 million in 2005-06, evenly divided between petroleum exploration (\$594 million) and mineral exploration (\$590 million).

Mineral exploration expenditure increased from \$381 million in 2001-02 to \$606 million in 2004-05, before declining slightly in 2005-06 to \$590 million. The overall increase over this time was mainly due to increases of \$130 million (517.5%) in iron ore exploration and \$76 million (122.5%) in copper, silver-lead-nickel and cobalt exploration. Diamonds were the only commodity to record a fall in exploration expenditure, declining in each year between 2001-02 and 2005-06, to reach \$11 million in 2005-06 - a little over half of the level of expenditure recorded in 2001-02. Among mineral commodities, gold attracted the highest level of exploration expenditure over the period, \$1,280 million or 51.9% of the total. Gold exploration has declined in the last two years to reach \$240 million in 2005-06 - slightly above the \$238 million recorded in 2001-02. Petroleum exploration rose by 23.7% (\$114 million) to \$594 million in Western Australia between 2001-02 and 2005-06.

MINERAL AND PETROLEUM EXPLORATION EXPENDITURE, By selected mineral - Western Australia

	2001-02	2002-03	2003-04	2004-05	2005-06
	\$m	\$m	\$m	\$m	\$m
Copper, silver-lead-zinc, nickel and cobalt	62.1	72.5	80.0	158.2	138.2
Gold	238.1	265.6	276.7	259.6	240.3
Iron ore	25.2	11.2	19.1	136.9	155.6
Mineral sands	6.6	5.5	10.6	7.2	12.9
Diamonds	21.2	17.7	17.0	15.9	11.1
Total minerals	381.1	423.6	465.8	606.0	590.2
Petroleum	479.8	598.3	670.5	526.5	593.6
Total(a)	860.9	1 021.9	1 136.3	1 132.5	1 183.8

(a) Total includes minerals not listed in the table.

Mineral and Petroleum Exploration, Australia, cat. no. 8412.0.

MINERAL AND PETROLEUM PRODUCTION

Western Australia is one of the world's major producers of mineral and petroleum commodities. According to the Western Australian Department of Industry and Resources, in 2005, the state's share of world output for the following commodities was:

- Iron Ore (18%);
- Alumina (17%);
- Gold (7%);
- Liquefied Natural Gas (LNG) (sea borne trade) (8%);
- Nickel (15%);
- Ilmenite (18%);
- Rutile (26%);
- Zircon (32%);
- Diamonds (mainly industrial grade) (18%); and

- Tantalum (54%).

From 2001-02 to 2005-06, Western Australia's production of minerals and petroleum was valued at \$158 billion. Three commodities accounted for almost half of this value: iron ore (\$37 billion or 23.5%), crude oil (\$24 billion or 14.9%) and LNG (\$18 billion or 11.3%). Other minerals to record over \$3 billion worth of production in each year over the period were alumina and gold, while nickel recorded an average just under \$3 billion per year.

The annual value of mineral and petroleum production increased from \$27 billion in 2001-02 to \$43 billion in 2005-06, with most of the increase occurring in the last two years of the period. Almost half of the increase (47.1%) was in iron ore production, which rose by \$7,749 million, mostly due to a price rise of 71.5% in 2005. Crude oil (up \$1,959 million), LNG (up \$1,932 million), Nickel (up \$1,783 million) and Alumina (up \$527 million) were other major contributors to the increase.

VALUE OF PRODUCTION, By selected commodity - Western Australia

	2001-02 \$m	2002-03 \$m	2003-04 \$m	2004-05 \$m	2005-06 \$m
Alumina	3 584.4	3 204.7	3 085.1	3 461.6	4 111.3
Copper metal	122.6	138.8	155.8	243.7	402.5
Lead metal	36.7	31.9	10.6	0.3	86.6
Zinc metal	173.8	173.2	79.6	42.4	332.1
Coal	258.1	272.9	274.3	271.7	297.4
Cobalt	127.4	124.2	213.1	202.4	183.5
Diamonds	489.3	773.3	519.7	na	na
Gold	3 469.0	3 445.3	3 109.6	3 016.4	3 574.0
Iron ore	5 207.6	5 205.3	5 331.5	8 302.3	12 956.3
Nickel	2 002.1	2 482.5	3 031.0	3 503.2	3 785.5
Petroleum condensate	1 680.0	2 046.4	1 747.5	2 203.1	2 791.7
Crude oil	4 198.8	4 258.1	3 773.6	5 146.6	6 157.6
Liquefied natural gas (LNG)	2 970.6	3 130.8	2 775.9	3 953.1	4 902.7
Natural gas	643.3	661.9	694.1	678.7	703.3
Salt	228.0	228.0	179.9	221.3	229.9
Total(a)	26 696.1	27 857.7	26 417.2	33 405.9	43 160.3

na not available

(a) Total includes commodities not listed in the table.

Western Australian Department of Industry and Resources, Mineral and Petroleum Statistics Digest 2005-06.

While increases in global commodity prices have underpinned strong growth in the value of resource commodity production and exports, increases in the volume of output were not as widespread. Shortages of skilled labour, in particular, have been cited as a reason for the failure of the parts of resources industry to sufficiently ramp up production capacity in response to surging world demand. Nevertheless, increases in production were recorded in a number of mining industries between 2001-02 and 2005-06.

Output of LNG increased by 57.6%, from 7.4 million tonnes in 2001-02 to 11.7 million tonnes in 2005-06. This was the result of the commissioning of a fourth processing train on the North West Shelf Venture gas project in September 2004, which added 4.2 million tonnes to annual production capacity. The second highest volume increase over the period was recorded in the iron ore industry. Production increased by 47.9% (78.9 million tonnes) between 2001-02 and 2005-06, to reach 243.5 million tonnes - the highest level on record. Copper (up 37.2%), Salt (up 25.6%) and Cobalt (up 15.9%) also recorded substantial

production increases over the period. Nickel output increased by 6.5% to reach 191.2 thousand tonnes in 2005-06, despite recording falls in the two previous years.

Production of crude oil decreased in every year between 2001-02 to 2005-06 by an annual average of 6.4% due to the declining yields of mature oil fields and the impact of recent cyclones in the north-west of the state. Gold production fell in three years over the period to 151.1 tonnes in 2005-06, an overall decrease of 18.3% from 2001-02, continuing a decline from the peak in production of 238 tonnes recorded in 1997-98. The fall is partly due to weakness in the Australian dollar-denominated gold price over much of the period and delays in some projects caused by skills shortages and rising capital costs. Lead (down 21.8 %) and Zinc (down 51.8%) also recorded declines in production volumes between 2001-02 to 2005-06, although both showed slight increases in 2005-06. The decline is largely due to the closure of the Lennard Shelf zinc-lead mine in the Kimberley in 2004.

VOLUME OF PRODUCTION, By selected commodity - Western Australia

	2001-02	2002-03	2003-04	2004-05	2005-06
Alumina (Mt)	10.9	11.1	11.2	11.2	11.5
Copper metal (kt)	53.5	59.5	53.3	61.9	71.0
Lead metal (kt)	75.1	70.0	29.4	2.3	58.7
Zinc metal (kt)	223.7	206.5	108.0	48.4	107.9
Coal (Mt)	6.2	6.3	6.0	6.3	6.7
Cobalt (kt)	4.4	4.9	4.6	4.5	5.1
Diamonds (M ct)	25.7	38.9	32.5	22.8	29.3
Gold (t)	185.0	187.5	177.0	167.4	151.1
Iron ore (Mt)	164.6	188.5	202.0	233.2	243.5
Nickel (kt)	179.5	191.9	182.2	180.4	191.2
Petroleum condensate (Gt)	6.3	6.9	6.2	5.6	5.6
Crude oil (Gt)	15.1	14.0	13.2	12.8	11.6
Liquefied natural gas (LNG) (Mt)	7.4	7.8	7.8	11.0	11.7
Natural gas (Gm3)	7.5	8.1	8.1	7.6	7.7
Salt (Mt)	8.6	9.6	9.9	11.6	10.8

Western Australian Department of Industry and Resources, Mineral and Petroleum Statistics Digest 2005-06.

MINERAL AND PETROLEUM EXPORTS

Industry view

The Western Australian economy relies heavily on export income, with the value of merchandise exports accounting for 39.0% of Gross State Product between 2001-02 and 2005-06. Merchandise exports originating from the resources industry (excluding confidential items) accounted for 63.0% (annual average) of total state exports during the same period. Nationally, exports originating from Western Australia's resources industry comprised 18.3% of total Australian merchandise exports.

VALUE OF EXPORTS(a), By industry of origin - Western Australia

ANZSIC Industry	2001-02 Value (fob) (\$m)	2002-03 Value (fob) (\$m)	2003-04 Value (fob) (\$m)	2004-05 Value (fob) (\$m)	2005-06 Value (fob) (\$m)
11 Coal mining	1.6	0.9	0.3	0.2	0.3
12 Oil and gas extraction	7 389.2	7 805.5	6 201.5	8 839.4	10 072.1
13 Metal ore mining	5 773.6	6 012.0	6 089.4	9 182.2	14 640.2

14	Other mining	81.5	80.7	75.0	87.4	107.6
2510	Petroleum refining	334.0	367.1	363.3	509.7	567.4
2711	Basic iron and steel manufacturing	254.8	314.2	406.9	91.6	106.9
2722	Aluminium smelting	-	-	-	0.9	0.1
2723	Copper, silver, lead and zinc smelting, refining	101.6	61.9	77.6	85.9	259.0
2729	Basic non-ferrous metal manufacturing n.e.c.	4 341.1	5 152.3	5 573.2	5 608.2	7 106.4
	Re-exports	61.4	62.2	120.4	81.7	78.4
	Total(a)	18 338.9	19 856.8	18 907.7	24 487.0	32 938.4

- nil or rounded to zero (including null cells)

(a) Excludes confidential commodities.

ABS data available on request, International Trade in Goods and Services, Australia, cat. no. 5368.0.

Major export commodities

Western Australia's major export commodities between 2001-02 and 2005-06 were iron ore, valued at \$36 billion (20% of total WA exports), followed by gold (\$27 billion or 14.8%), crude petroleum oil (\$23 billion or 12.7%) and natural gas (\$15 billion or 8.1%).

The value of Western Australia's resources exports increased by 79.6% between 2001-02 and 2005-06. The value of metal ore mining exports increased by 153.6% during this period, mostly due to iron ore, which increased by 148.9%. Most of this increase was over the last two years, with a 54.0% increase in 2004-05 and a 58.4% increase in 2005-06. This growth reflected the higher iron ore export contract prices negotiated in 2004-05 and 2005-06. The increase in volume of iron ore exports between 2001-02 and 2005-06 was 52.9% or 82.1 million tonnes.

Exports from the oil and gas extraction industry increased by 36.3% between 2001-02 and 2005-06, from \$7,389 million to \$10,072 million. Natural gas exports increased by 56.9% during this period, \$2,612 million to \$4,093 million, mainly due to increased production capacity on the North West Shelf. Crude oil exports recorded a rise of 23.1%, over the period, from \$4,315 million to \$5,311 million. However, in volume terms, there was a 35.5% decrease in crude oil exports. The other commodity to record a large value increase between 2001-02 and 2005-06 was gold, which rose by 98.8%, from \$3,602 million to \$7,159 million, mainly due to centralisation of national gold refining in Western Australia. The volume of gold exports increased by 59.9% during this period.

Major export markets

The Western Australian Department of Mineral and Petroleum Resources reported the major markets for the resource industry's main commodity exports in 2005-06 as:

- Petroleum products: Japan (53%), Republic of Korea (16%) and Singapore (9%);
- Iron ore: China (53%), Japan (29%) and Republic of Korea (10%);
- Nickel: China (23%), Canada (18%), Finland (15%) and Japan (7%);
- Non-monetary gold: India (39%), United Kingdom (33%), Thailand (10%) and Japan (5%); and
- Alumina: China (17%), South Africa (17%), Bahrain (15%), United Arab Emirates (13%), Mozambique (11%) and Canada (10%).

In 2001-02 major export markets for the same resources were:

- Petroleum products: Japan (53%), Republic of Korea (17%) and Singapore (10%);
- Iron ore: Japan (40%), China (28%) and Republic of Korea (16%);
- Nickel: Finland (26%), Netherlands (16%) and Japan (15%);
- Non-monetary gold: United Kingdom (24%), Republic of Korea (16%), Singapore (16%), Hong Kong (15%) and Japan (8%); and
- Alumina: China (19%), United States (18%) South Africa (13%), Canada (13%), Bahrain (10%) and United Arab Emirates (10%).

In 2005-06, China replaced Japan as the state's major destination for iron ore exports, increasing from a share of 28% of total iron ore exports in 2001-02 to 53% in 2005-06 - Japan's share decreased from 40% to 29% over the same period. China also rose to become the major customer for Western Australia's nickel in 2005-06, with a 23% share of total nickel exports. India overtook the United Kingdom as the major export country for non-monetary gold, rising from a share of 3% to 39% between 2001-02 and 2005-06 - the United Kingdom share increased from 24% to 33%. China remained the top export nation for alumina in 2005-06, accounting for 17% of alumina exports - despite its share decreasing slightly from 19% in 2001-02. There was little change in the share of the state's petroleum exports to Japan, Republic of Korea and Singapore over the period.

The agriculture industry in Western Australia (Feature Article)

FEATURE ARTICLE 2: THE AGRICULTURE INDUSTRY IN WESTERN AUSTRALIA

INTRODUCTION

Despite experiencing two severe droughts in the five years between 2000-01 and 2004-05, the value of agriculture production in Western Australia increased from \$4,387 million to \$5,149 million - a rise of \$762 million (17.4%). However, there was considerable fluctuation in agriculture production from year-to-year over this period. For example, in 2004-05, the gross value of production in Western Australia decreased by 17.9% (\$1,125 million) to \$5.1 billion, following strong growth in 2003-04 of 37.9% (\$1,724 million). Drought conditions have also affected agriculture production across Australia and appears to have had greater impact in other states and territories, with Western Australia's contribution to total Australian agriculture production rising from 12.8% in 2000-01 to 14.4% in 2004-05. However, the Australian Bureau of Agricultural and Resource Economics (ABARE) has forecast decreases in Western Australia's grain production for 2006-07 due to the impact of the 2006 drought.

Western Australia is a major grain grower, contributing significantly to Australia's wheat and barley production. Fruit production is also prominent, mainly confined to the more temperate areas of the state between Gingin to the north of Perth and Albany on the south coast, where weather conditions are conducive to the cultivation of a wide variety of fruits. Apples are the principal orchard fruit crop grown in Western Australia. Carrots and potatoes are the major vegetable crops. Pastoral activities are also widespread in Western Australia, with livestock raised being primarily cattle for beef production, and sheep for meat and wool. Between 2000-01 and 2004-05, crops were the major source of income from Western

Australian agriculture, followed by livestock for meat, and livestock products such as wool, milk and eggs.

This article examines the performance of Western Australia's agriculture industry over the five years to 2004-05, in light of the adverse weather conditions experienced over that time. It looks at the volume and gross value of agriculture production for Western Australia's major agriculture produce, the changing numbers of livestock on farms and the value of agriculture exports in 2004-05. More information will become available from the 2005-06 Agriculture Census due for release in November 2007.

DROUGHT AND AGRICULTURE PRODUCTION

While droughts can occur in all parts of Western Australia, they are most economically damaging in the south-west of the state, an area encompassing most of the state's population and much of its agriculture. However, historically, variability of rainfall in the south-west has been smaller than in the south-east of the state and severe widespread droughts in individual years have been less of an issue in the south-west, although in recent decades this area has experienced a general decline in rainfall.

In recent times, drought has had a major impact on agriculture production in Western Australia. Drought conditions in 2002 impacted negatively on the volume of wheat (down 58.3%), barley (down 53.3%) and canola (down 50.5%) produced in the state in 2002-03. With drought conditions also occurring in 2006, ABARE has forecast decreases in wheat, barley and canola production of 61.9%, 63.6% and 69.5% respectively.

Agriculture income tends to vary significantly from year-to-year, mainly due to variations in production and prices received by farmers for their products. While the current drought is expected to impact on the production of wheat, barley and canola, it is less clear what will happen to the prices of these crops. ABARE expects the decrease in grain production to be offset to some extent by a general rise in grain prices in 2006-07. The 2006 drought is expected to have a similar impact on agriculture production as the 2002 drought, with production increasing strongly in the following year. ABARE predicts that not all of this increased production will result in higher agriculture income. For example, the slaughtering of livestock is forecast to be higher in 2006-07, but farmers are likely to receive lower prices for their stock, resulting in lower agriculture income in 2006-07.

RURAL COMMODITY PRICES

The Western Australian Department of Treasury and Finance compiles an index of rural commodity prices for the state's major agriculture exports, including wheat, barley, lupins, wool, beef and sheep. Over the last five years, rural commodity prices have climbed to record highs for Western Australia's produce, although they have fallen away in the most recent years. Between 1999-2000 and 2002-03, Western Australia's rural commodity prices increased by 50.5% to reach an all time high in 2002-03. Between 2002-03 and 2005-06, rural prices have fallen by 22.5%.

RURAL COMMODITY PRICES, Western Australia

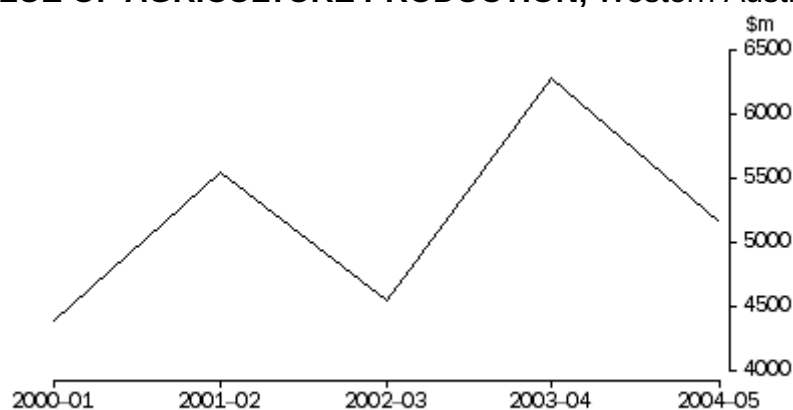


Source: Western Australian Department of Treasury and Finance

VALUE OF AGRICULTURE PRODUCTION

Generally, movements in rural commodity prices match movements in the value of agriculture production and this has been the case for Western Australia in recent years. In 2001-02, the value of Western Australia's agriculture production increased by 26.3%, as rural commodity prices rose by 6.9%, while in 2004-05 there was a decrease in both the value of the state's agriculture production and rural commodity prices of 17.9% and 9.0% respectively. However, there were years when prices and production values moved in opposite directions. For example, in 2002-03, rural commodity prices rose by 15.5% and the value of agriculture production decreased by 17.9%, as a result of an offsetting decline in agriculture production volumes.

VALUE OF AGRICULTURE PRODUCTION, Western Australia



Source: Value of Agricultural Commodities Produced, Australia, cat. no. 7503.0.

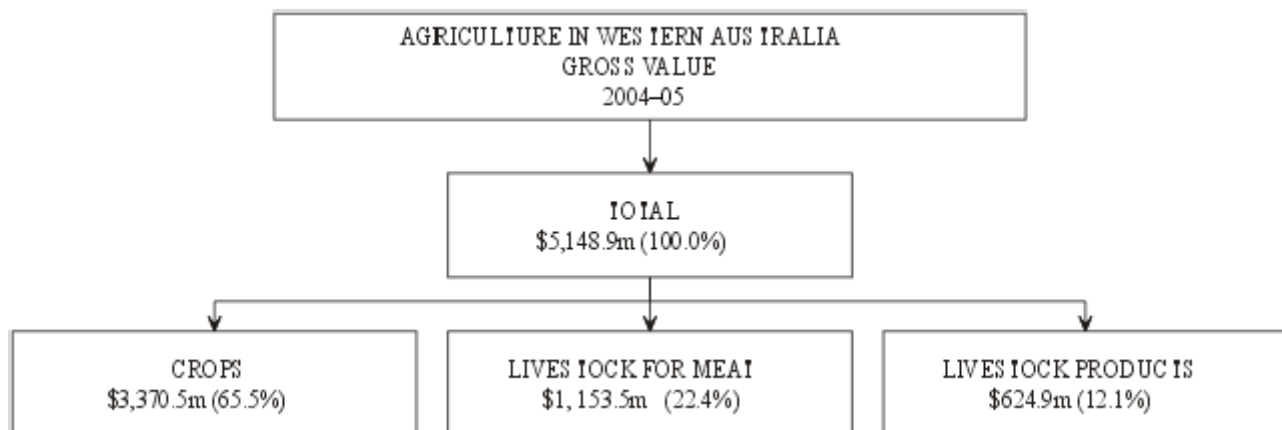
WESTERN AUSTRALIA'S CONTRIBUTION TO NATIONAL AGRICULTURE PRODUCTION

Western Australia's contribution to Australia's total agriculture production increased from 12.8% to 14.4% between 2000-01 and 2004-05. In 2000-01, Western Australia contributed \$4,387 million to Australia's total agriculture production of \$34,237 million. By 2004-05, this contribution increased to \$5,149 million of Australia's total of \$35,555 million. However, there was some volatility during this period. Western Australia's share of Australian agriculture production ranged from a low of 12.8% in 2000-01 to a high of 17.0% in 2003-04, as

production recovered strongly following the 2002 drought. In 2002-03, the year affected by the drought, Western Australia's share of Australian agriculture production decreased to 14.0% (\$4,550 million).

WESTERN AUSTRALIA'S AGRICULTURE PRODUCTS

Western Australia's agriculture is divided into three major categories, crops, livestock for meat and livestock products. Crops include grain production, as well as fruit and vegetables. In 2004-05, crops made up 65.5% of total agriculture production in Western Australia. Livestock for meat made up 22.4% of total production in that year and includes cattle (beef), calves (veal), sheep (mutton), lambs (lamb), pigs (pig meat), poultry (chicken) and other livestock. Livestock products contributed 12.1% to total production in 2004-05 and includes wool, milk and eggs.



Crops

Over the five years to 2004-05, crop production has risen from \$2,815 million to \$3,371 million in Western Australia. This was mainly due to a 28.9% rise in the production of cereals for grain. The main cereals grown for grain are wheat and barley. Some of the state's other major crops, like apples, carrots and potatoes, have recorded falling production over the same period.

VALUE OF CROP PRODUCTION, Western Australia

	2000-01 \$m	2001-02 \$m	2002-03 \$m	2003-04 \$m	2004-05 \$m	% of total crops
Cereals for grain	1 814	2 658	1 507	3 134	2 338	69.4
Legumes for grain	175	241	173	246	165	4.9
Fruit and nuts(a)	118	121	124	142	163	4.8
Grapes	102	97	101	130	117	3.5
Nursery production	108	109	106	104	^99	2.9
Oilseeds	111	163	132	225	168	5.0
Vegetables	227	217	224	241	196	5.8
Pasture and grasses	85	98	103	74	58	1.7
Other crops	75	102	115	180	67	2.0
Total crops	2 815	3 806	2 585	4 475	3 371	100.0

^ estimate has a relative standard error of 10% to less than 25% and should be used with caution

(a) Excludes grapes.

Value of Agricultural Commodities Produced, Australia, cat. no. 7503.0.

Wheat and barley

Western Australia's wheat production contributed 41.5% to Australia's total wheat production in 2004-05. Wheat is the state's most important agricultural product, accounting for 34.8% of total agriculture production and 53.2% of total crop production in 2004-05. Between 2000-01 and 2004-05, wheat production increased by 48.2% (2,805,000 tonnes) to 8,619,000 tonnes or by a gross value of \$309 million (20.8%) from \$1,484 million to \$1,793 million. However, in 2002-03, wheat production dropped by 47.8% to 4,047,000 tonnes as a result of the drought, before recording the largest recovery on record in the following year, with production increasing by 173.5% or 7,023,000 tonnes.

Barley production followed a similar pattern to wheat production over the period. Barley production rose by 83.3% (1,131,000 tonnes) between 2000-01 and 2004-05, from 1,358,000 tonnes to 2,489,000 tonnes. Reflecting this increase was a rise in the value of barley production from \$256 million to \$436 million. As with wheat, barley production decreased in 2002-03 by 0.7% to 1,349,000 tonnes (or \$309 million), before increasing again to 3,170,000 tonnes (or \$542 million) in 2003-04.

WHEAT AND BARLEY PRODUCTION, Western Australia

	2000-01 '000 tonnes	2001-02 '000 tonnes	2002-03 '000 tonnes	2003-04 '000 tonnes	2004-05 '000 tonnes
Wheat	5 814	7 760	4 047	11 070	8 619
Barley	1 358	2 263	1 349	3 170	2 489

Agricultural State Profile, Western Australia, 2004-05, cat. no. 7123.5.55.001

Apples

Fruit production is mainly confined to the more temperate regions of Western Australia, with apples the principal orchard fruit grown in Western Australia. The four most common varieties produced in 2004-05 were Pink Lady (10,900 tonnes or 30.4% of total apple production), Granny Smith (9,100 tonnes or 25.3%), Gala (4,900 tonnes or 13.6%) and Sundowner (2,900 tonnes or 8.1%). Apple production has been relatively poor in recent years, with the volume of apples produced decreasing in each year between 2000-01 and 2004-05. Apple production declined by an average of 4.1% (1,840 tonnes) per year, from 45,100 tonnes in 2000-01 to 35,900 tonnes in 2004-05.

Despite the decrease in the volume of apples produced, the gross value of apple production increased from \$37 million in 2000-01 to \$40 million in 2004-05. The gross value of apple production did, however, fluctuate somewhat from a low of \$36 million in 2002-03 to a high of \$41 million in 2003-04.

Potatoes and carrots

Potatoes are the major vegetable crop produced in Western Australia, accounting for 18.0% of total vegetable production in 2004-05, mainly concentrated in the higher rainfall areas of the state's south-west. The production of potatoes remained fairly constant between 2000-01 and 2004-05, with an increase in production from 75,500 tonnes to 81,200 tonnes over the entire period.

The gross value of potato production fluctuated slightly more over this time. The gross value of potato production reached a high of \$31 million in 2000-01, before dropping to \$27 million in 2001-02 - despite potato production increasing in that year. A gradual increase followed in each of the next three years, with gross values reaching \$34 million in 2002-03 and \$35 million in 2003-04 and 2004-05.

Carrots are the other major vegetable crop produced in Western Australia, accounting for 17.5% of vegetable production in 2004-05. Nevertheless, the number of carrots produced in the state decreased from 80,300 tonnes to 66,200 tonnes between 2000-01 and 2004-05 (down 17.6% or 14,100 tonnes). There were some good years however, with production increasing in 2001-02 and 2002-03 to 88,200 tonnes and 88,000 tonnes respectively.

The gross value of carrot production also recorded a decline over the five year period, down from \$43 million to \$34 million between 2000-01 and 2004-05. However, in 2001-02 and 2002-03, the gross value of carrot production did increased to \$51 million and \$50 million respectively.

Livestock for meat

The value of livestock produced for meat has increased by \$208 million (21.9%) over the five years to 2004-05 in Western Australia. The main livestock driving this growth was cattle (and calves) and sheep (and lambs), increasing by \$114 million (24.7%) and \$72 million (23.3%) respectively. However, the total number of livestock slaughtered decreased by 1,061,200 (15.4%) over the period.

Pastoral activities are widespread in Western Australia. In the southern areas of the state livestock are usually raised in conjunction with grain growing (i.e. wheat-sheep farming of the wheatbelt), while in the north livestock are generally grazed on large specialist stations (i.e. extensive cattle pastoralism). The livestock raised are primarily sheep for meat and wool, and cattle for beef production.

VALUE OF LIVESTOCK PRODUCED FOR MEAT, Western Australia

	2000-01 \$m	2001-02 \$m	2002-03 \$m	2003-04 \$m	2004-05 \$m	% of total livestock
Cattle (and calves)	458	476	467	489	572	49.6
Sheep (and lambs)	308	398	444	400	380	33.0
Pigs	np	np	np	np	np	np
Poultry	np	np	np	np	np	np
Other livestock	10	9	8	5	7	0.6
Total livestock	946	1 080	1 131	1 100	1 154	100.0

np not available for publication but included in totals where applicable, unless otherwise indicated
Value of Agricultural Commodities Produced, Australia, cat. no. 7503.0.

Cattle (and calves)

Cattle (and calves) raised for meat production in Western Australia accounted for 11.1% of the value of state agriculture production and 49.6% of state livestock production in 2004-05. The number of meat cattle (and calves) increased slightly between 2000-01 and 2004-05,

from 2,001,000 to 2,011,000. However, there was a much lower number of meat cattle (and calves) in the three intervening years. Cattle (and calf) numbers decreased to 1,980,000 in 2001-02, then to 1,815,000 in 2002-03, before increasing to 1,962,000 in 2003-04. The lower number of cattle (and calves) was due to drought conditions limiting the amount of water and feed available to rear livestock, and as a consequence, many more cattle (and calves) were slaughtered during this period. Since 2001-02 (374,301), the number of cattle (and calves) slaughtered increased in each year to 434,557 in 2002-03, 467,609 in 2003-04 and 514,800 in 2004-05. Over the whole five year period, cattle (and calve) slaughterings rose by 22.3% or 93,800.

The gross value of meat cattle (and calves) increased significantly between 2000-01 and 2004-05, from \$458 million to \$572 million, but there was some fluctuation in the intervening three years. After initially increasing to \$476 million in 2001-02, the gross value of meat cattle (and calves) dropped to \$467 million in 2002-03, in line with a decrease in cattle (and calf) numbers in that year. The gross value of meat cattle (and calves) increased again in 2003-04 to \$489 million.

Sheep (and lambs)

In 2004-05, sheep (and lambs) for meat production accounted for 7.4% of the value of total agriculture production and 33.0% of total livestock production in Western Australia. Sheep (and lamb) flocks, during the five years to 2004-05, showed a significant increase, rising by 10.6% (2,463,000) from 23,129,000 to 25,592,000.

Despite the higher number of sheep (and lambs) being raised in the state, slaughterings actually decreased from 5,911,300 to 4,671,900 between 2000-01 and 2004-05. The most significant decline occurred in 2001-02, when the number of sheep (and lambs) slaughtered fell by 2,093,373 or 35.4%. The gross value of sheep (and lamb) production increased in each year between 2000-01 and 2002-03, but decreased in each of the following two years. Overall, the gross value of sheep (and lamb) production rose by \$72 million or by an annual average of \$14,360 (4.7%) over the period.

Pigs

Western Australia's pig herd numbers showed an overall decline from 286,000 to 266,000 between 2000-01 and 2004-05, despite some strong gains in the initial part of the period. Pig herd numbers increased from 286,000 in 2000-01 to 361,000 in 2001-02, before decreasing to 266,000 in 2004-05. While the slaughtering of pigs generally rose over the period, it did fluctuate from a low of 591,427 in 2001-02 to a high of 674,419 in 2003-04.

Livestock products

Livestock products such as wool, milk and eggs increased marginally (up \$1 million or 0.2%) over the last five years in Western Australia. Wool was by far the largest contributor to growth over this period, not surprising given it accounts for 78.4% of total livestock product output and 9.5% of total agriculture production in the state (based on 2004-05 figures).

Wool

The volume of taxable wool received by brokers and dealers in Western Australia increased from 115,600 tonnes to 118,802 tonnes between 2000-01 and 2005-06. However, wool receivals were down in each of the intervening years. Wool receivals dropped to 103,000 in 2001-02, then increased in 2002-03 and 2003-04 to 108,700 tonnes and 109,853 tonnes respectively, before decreasing again in 2004-05 to 107,054 tonnes.

The gross value of wool production increased marginally between 2000-01 and 2004-05 from \$488 million to \$490 million. However, there were some large increases in the value of wool production within the period, rising to \$514 million in 2001-02, reaching a high of \$691 million in 2002-03 and \$558 million in 2003-04, despite declining wool production in these years.

VALUE OF LIVESTOCK PRODUCTS, Western Australia

	2000-01	2001-02	2002-03	2003-04	2004-05	
	\$m	\$m	\$m	\$m	\$m	% of total livestock products
Wool	488	514	691	558	490	78.4
Liquid whole milk	103	113	114	111	108	17.2
Eggs	34	30	29	31	28	4.4
Total livestock products	624	656	834	699	625	100.0

Value of Agricultural Commodities Produced, Australia, cat. no. 7503.0.

WHERE DOES THE MAJOR PRODUCE GO?

Over half (54.8%) of Western Australia's agriculture production is exported overseas, based on 2004-05 figures. The main agriculture exports for Western Australia include wheat, wool and live sheep. Most of this produce travels to countries in Asia and the Middle East.

Wheat

Wheat is Western Australia's major agriculture export, accounting for 7.3% of total state exports and around 62.0% of total agriculture exports in 2004-05. Since 2000-01, exports of wheat from Western Australia have increased by 15.5% (\$212 million) to \$1,583 million in 2005-06. In 2005-06, 98.1% of wheat export values were confidentialised and classified as having 'No country details'. However, when looking at the volume of wheat exports, the major countries receiving Western Australia's wheat in 2005-06 were: Indonesia, Egypt, Republic of Korea, Japan, Iraq, Yemen, Iran, Malaysia, Viet Nam, Kuwait, China, Sudan, Singapore, United Arab Emirates and Myanmar.

Potatoes

Mauritius, Singapore and Malaysia were the major export countries for Western Australia's potatoes in 2005-06, with exports valued at \$2.1 million, \$1.9 million and \$1.7 million for each of these countries respectively. Between 2000-01 and 2005-06, exports of potatoes increased by 31.4% to Mauritius, 1.1% to Singapore and 188.1% to Malaysia.

Oats

Western Australia's largest export destination for oats in 2005-06 was India, with exports totalling \$1.4 million - an increase of \$1.3 million from 2000-01. This was followed by the Philippines who imported oats to the value of \$1.1 million in 2005-06, an increase of \$0.6 million (110.9%), while the Republic of Korea imported \$0.8 million of Western Australia's oats in 2005-06, a rise of \$0.3 million (48.8%) from 2000-01.

Apples

Western Australia's exports of apples were lower in 2005-06 compared to 2000-01 (down 77.1% or \$11 million), partly due to a decline of 61.9% (\$4 million) in apple exports to the United Kingdom over this period - the state's largest export market for apples.

Live sheep

Middle eastern countries were the major export markets for Western Australia's live sheep in 2005-06, with Saudi Arabia, Kuwait and Jordan importing live sheep totalling \$84 million, \$54 million and \$37 million respectively. Exports of live sheep to Saudi Arabia increased by \$34 million (69.0%) between 2000-01 and 2005-06, while to Kuwait they increased by \$15 million (39.4%) and to Jordan by \$22 million (136.5%).

Wool

China was the major export country for Western Australia's wool, importing \$307 million of wool in 2005-06. Wool exports to China increased by \$94 million (44.0%) between 2000-01 and 2005-06. India, the second largest export destination for wool, imported wool to the value of \$59 million in 2005-06, an increase of \$14 million (31.4%) since 2000-01.

VALUE OF AGRICULTURE EXPORTS, By selected commodity and country - Western Australia - 2005-06

Commodity and country	Value of exports	Share of commodity totals	Change from 2000-01	
	\$m	%	\$m	%
CROPS				
Wheat				
No country details	1 583.1	98.1	211.9	15.5
Total wheat	1 614.3	100.0	235.4	17.1
Potatoes				
Mauritius	2.1	29.6	0.5	31.4
Singapore	1.9	27.2	-	1.1
Malaysia	1.7	23.9	1.1	188.1
Total potatoes	7.1	100.0	2.0	38.3
Oats				
India	1.4	21.1	1.3	3 214.1
Philippines	1.1	17.5	0.6	110.9
Republic of Korea	0.8	12.5	0.3	48.8
Total oats	6.5	100.0	1.8	39.1
Apples				
United Kingdom	2.7	82.8	-4.4	-61.9
Total apples	3.3	100.0	-11.2	-77.1
LIVESTOCK FOR MEAT				

Live sheep				
Saudi Arabia	84.1	36.2	34.3	69.0
Kuwait	53.8	23.2	15.2	39.4
Jordan	37.3	16.1	21.5	136.5
Total live sheep	232.2	100.0	41.4	21.7

LIVESTOCK PRODUCTS

Wool				
China	306.9	62.4	93.7	44.0
India	58.7	11.9	14.0	31.4
Total wool	491.8	100.0	-27.1	-5.2

- nil or rounded to zero (including null cells)

ABS data available on request, International Trade in Goods and Services, Australia, cat. no. 5368.0.

Totals include items not listed in the table.

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